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MONILIASIS AND MONILIIDS *

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Since the discovery by Langenbeck [1] in 1839 of the organism now called Monilia albicans, its constant presence in oral thrush has been recognized. Kohlbrügge,[2] in 1901, found what he believed to be the same parasite in the intestines of patients with tropical sprue, and he believed it to be the cause of this disease. Guilini,[3] in 1891, described thrush of the vulva. It was not, however, until 1911 that the production of widespread dermatoses by this parasite of the alimentary tract was demonstrated by Beck and Ibrahim. Since then the same or similar organisms have been found in many types of skin disease, and an enormous number of reports on their occurrence has accumulated. These have been excellently summarized by Shelmire [4] and others. Without attempting to review them all, it would seem useful to recapitulate the lesions in which organisms of this character have been found before discussing some of the more recent developments in this field.

EROSIO INTERDIGITALIS

This familiar form of intertrigo of the fingers consists in a rounded patch of white macerated epidermis covering the web and extending a short distance onto the sides of the fingers. There are usually one or more red fissures at the center of the lesions, and at times the entire area desquamates, exposing a moist red base. The infection almost always attacks the third interdigital space, but other webs are often involved as well. The patients are usually elderly Jewish housewives whose hands have been much exposed to water and soda used in washing dishes.

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* From the Vanderbilt Clinic, College of Physicians and Surgeons, Columbia University.

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1. Langenbeck: Frorieps Neuenotizen des Landes Industrie Comptoires zu Weimar **12**:144, 1839.

2. Kohlbrügge, J. H. F.: Arch. f. Schiffs- u. Tropen-Hyg. **5**:394, 1901.

3. Guilini, P.: Zentralbl. f. Gynäk. **15**:1049, 1891.

4. Shelmire, B.: Thrush Infections of the Skin, Arch. Dermat. & Syph. **12**: 789 (Dec.) 1925.

PARONYCHIA

The chronic paronychia due to yeastlike organisms was described by Dubendorfer, Kumer and Shelmire. It is now generally recognized and differentiated from trichophyton or staphylococcus infections by its clinical characteristics: the occasional discharge of thin pus, the cushion-like thickening of the paronychial tissue, the slow erosion of the lateral borders of the nails, the gradual thickening and brownish discoloration of the nail plates and the development of pronounced transverse ridges. It occurs under the same circumstances as erosio interdigitalis and frequently in the same patients. Kingery and Thienes [5] reported the epidemic occurrence of an indistinguishable lesion in fruit canners.

PERLÈCHE

In 1929, Finnerud [6] reported the presence of yeastlike organisms in a large series of cases of perlèche in children. Skolnik [7] found similar organisms in perlèche of adults. Robinson and Moss [8] have reported a series of such cases from which they isolated Monilia albicans. Most of their patients also presented paronychias or interdigital erosions. They also noted that these patients frequently had poorly fitting artificial dentures.

INTERTRIGO AND DIABETIC VULVITIS

Lesions of the groin having the distribution of tinea cruris in which yeastlike organisms are found are occasionally observed. They show, as a rule, a wide area of thin, glistening, moist, pink or dusky red skin with a polycyclic border and a thin overhanging fringe of somewhat macerated epidermis. In chronic cases excoriated and dry lichenified areas may develop. In the folds of the groin there are a variable degree of fissuring and an accumulation of white macerated epidermis. Beyond the large areas are usually small satellite lesions consisting of collapsed flat vesicles covered with macerated scales. Similar lesions may occur beneath the breast, where they appear like a magnified interdigital erosion. They are found also in the umbilicus, in the intergluteal fold and about the anus. In one obese woman they occurred also at the bottom of the fleshy folds on the flanks and sides of the thighs.

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5. Kingery, L. B., and Thienes, C. H.: Mycotic Paronychia and Dermatitis, Arch. Dermat. & Syph. **11**:186 (Feb.) 1925.

6. Finnerud, C. W.: Perlèche, Arch. Dermat. & Syph. **20**:454 (Oct.) 1929.

7. Skolnik, E. A.: Perlèche of Adults, Arch. Dermat. & Syph. **22**:642 (Oct.) 1930.

8. Robinson, L. B., and Moss, M. C.: Superficial Glossitis and Perlèche Due to Monilia Albicans, Arch. Dermat. & Syph., this issue, p. 644.

Thrush of the vulva was first reported by Guilini,[3] and the subject has recently been reviewed by Kehrer.[9] I have lately observed an unusually severe instance in a young woman with severe diabetes. She presented a typical intertrigo of the groins and intergluteal fold. The skin over the labia was red and macerated, and the mucous membrane was inflamed and covered in areas by a white pasty membrane. There were masses of white macerated skin in the interlabial folds. The labia minora were hypertrophied so that they projected beyond the outer lips, and their surface was studded with papillary outgrowths each capped with a moist white scale.

The relationship of these forms of moniliasis to diabetes is of some interest. Frerichs [10] believed that diabetic pruritus vulvae was due to the growth of fungi in the skin and urine. Bloch,[11] in 1915, isolated the thrush fungus from a case of diabetic vulvitis and intertrigo, and he recently referred to the frequent occurrence of such lesions in diabetic patients. Alexander [12] and others have observed this association. Dubreuilh and Joulia [13] observed diabetic vulvitis in two of their twenty cases of intertrigo due to yeasts. In five cases of intertrigo at the Vanderbilt Clinic from which Monilia albicans was isolated, four patients were diabetic and the fifth formerly had had a hyperglycemia, but no glycosuria. In a recent case, that of a man who had been long under clinical observation, the diagnosis of diabetes was first suggested by my associate, Dr. Gross, on account of the thrushlike character of an intertrigo of the gluteoinguinal region. Examination of the blood and urine confirmed this suspicion, and M. albicans was isolated from the skin lesions.

LESIONS OF THE TOES

Weidman [14] recovered yeastlike organisms from a patient with intertrigo of the toes. Robinson and Moss [8] reported one case with interdigital erosion of the hands and dermatitis of the toes in which M. albicans was found in both lesions. The occurrence of this particular organism is apparently uncommon in lesions of the toes of adults, as in a very large number of cultures made at the Vanderbilt Clinic it has been found in only a few instances.

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9. Kehrer: Handbuch der Gynäkologie, Munich, J. F. Bergmann, 1929, vol. 5, pt. 1, p. 122.

10. Frerichs, F. F. T.: Ueber den Diabetes, Berlin, A. Hirschwald, 1844.

11. Bloch, B.: Cor.-Bl. f. schweiz. Aerzte **46**:273, 1916; Brit. J. Dermat. **42**: 569, 1930.

12. Alexander: Dermat. Wchnschr. **74**:1125, 1923.

13. Dubreuilh and Joulia: Ann. de dermat. et syph. **3**:145, 1922.

14. Weidman, F. D.: Resemblance of Yeasts in Cutaneous Scrapings to Hyphromycetes, Arch. Dermat. & Syph. **5**:325 (March) 1922.

THRUSH IN INFANTS

As a sequence of oral thrush, especially in marasmic infants, lesions similar to the monilial intertrigos may occur in the groin and buttocks and may extend until they cover nearly the entire diaper region. The toes and axillae are frequently involved. In some cases lesions are scattered all over the body, consisting of flat pustules, which quickly dry to form macular lesions covered with macerated scales.

MONILIASIS FOLLOWING CONTINUOUS BATHS AND WET DRESSINGS

The water-bed trichophytosis described by Jacoby as a sequence of continuous bath treatment was found by Kumer to be associated with the presence of a large spored variety of the thrush fungus. The eruption begins in the groins and axillae and on the palms and soles. The tissue about the nails and interdigital folds is frequently involved. The elemental lesions are described by some as vesicopustules; by others, as flat papules that coalesce to form wide geographic areas of reddened skin. Similar lesions were observed by Stäheli, Miescher and Kumer to follow the prolonged applications of wet dressings. A thrush infection resembling miliaria rubra was observed by Miescher to occur after profuse sweating.

MONILIASIS OF THE MUCOUS MEMBRANES

Aside from the familiar thrush lesions, cases of moniliasis of the tongue of quite a different character have been described by Zeisler [15] and by Frost and his co-workers [16] as due to organisms of this group. Recently, Robinson and Moss reported the common occurrence of rubber-like tongues resulting from atrophy of the papillae in patients with moniliasis of the hands or lips. I have also recovered M. albicans from several cases of severe gingivitis.

Thrush of the vagina has been observed chiefly in two classes of patients: in diabetic patients in whom it may occur alone or associated with vulvitis and in pregnant women. Castellani and Taylor have described two types: a membraneous type resembling oral thrush and a pustular type in which there is a purulent discharge that simulates gonorrhea.

Balanoposthitis due to moniliae has been described by Dubreuilh and Joulia,[13] Castellani and Taylor [17] and others. The thrush organism was isolated by Pichler [18] from a case of diphtheritic conjunctivitis.

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15. Zeisler, E. P.: Monilia Infection of the Tongue, Arch. Dermat. & Syph. **15**:171 (Feb.) 1927.

16. Frost, K.; Sutherland-Campbell, H., and Plunkett, O. A.: Monilia of the Tongue, Arch. Dermat. & Syph. **20**:811 (Dec.) 1929.

17. Castellani, A., and Taylor, F. E.: J. Obst. & Gynaec. Brit. Emp. **32**:69, 1925; J. Trop. Med. **28**:242, 1925.

18. Pichler: Beitr. z. prakt. Augenh. **3**:293, 1896.

OTHER LESIONS ASSOCIATED WITH YEASTLIKE ORGANISMS

Kingery and Thienes described the occurrence of dermatitis on the forearms in their cases of paronychia. Similar eczematous eruptions are seen on the backs of the hands of patients with interdigital erosions. Schamberg [19] and others have described dermatitis about the nipples of nursing mothers from which the thrush organism was isolated. Tanner and Feuer [20] have described a recurrent pustular dermatitis of the tips of the fingers due to Endomyces albicans.

Cleveland White [21] has isolated cryptococci from generalized eruptions of the type usually classed as seborrheic eczema. C. J. White and Swartz [22] have described similar eruptions as cryptococcosis epidermica, and Becker and Ritchie [23] have investigated the pathogenicity of these organisms. MacLeod and Dowling [24] have restudied the question of the spore of Malassez, or Pityrosporum, and they believe that all forms of seborrheic dermatitis are due to this fungus.

It is aside from my present purpose to discuss bronchial moniliasis or the so-called torula meningitis except to mention that the organisms concerned seem closely related to M. albicans. The organisms found in the blastomycosis of Gilchrist and in coccidioidal granuloma belong to quite a different category.

CLINICAL CHARACTERISTICS

While at first sight these various conditions are widely different, they have certain features in common. Pustules, when they occur, are characteristically flat, the covering epidermis white and macerated and the pus wheylike or milky. The horny layer of skin becomes macerated and white. This may long remain adherent, but is slowly exfoliated in large flakes, exposing lines or wide areas of bright red, slightly moist skin. The peculiar maceration of the skin is characteristic of the monilial intertrigo of adults and is seen in the interdigital and perlèche lesions. Moreover, a predisposing factor is almost always present, occasionally diabetes, but more frequently a maceration of the skin by its own secretions or by exposure to water.

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19. Schamberg, J. F.: Arch. Pediat. **32**:617, 1915.

20. Tanner, F. W., and Feuer, B.: Cultural Studies on an Infection of the Skin by Endomyces Albicans, Arch. Dermat. & Syph. **1**:365 (April) 1920.

21. White, Cleveland: New York State J. Med. **27**:1116, 1927.

22. White, C. J., and Swartz, J. H.: Cryptococcosis Epidermica, Arch. Dermat. & Syph. **18**:692 (Nov.) 1928.

23. Becker, S. W., and Ritchie, E. B.: The Rôle of Yeasts in the Production of Superficial Dermatitis, Arch. Dermat. & Syph. **22**:790 (Nov.) 1930.

24. MacLeod, J. H. M., and Dowling, G. R.: Brit. J. Dermat. **40**:139, 1928; **42**:549, 1930.

The commonly recognized forms of moniliasis, namely, the interdigital erosion, paronychia and perlèche, occur so frequently in the same persons that they are evidently merely different localizations of the same disease.

MONILIIDS

Recent observations have indicated that in addition to the lesions listed, which are probably due to infection by moniliae, lesions may be caused by the reaction of sensitized areas of skin to substances absorbed from moniliae growing in distant lesions. In 1929, Kendall Frost and his co-workers [16] described a case of glossitis from which a monilia was isolated which also presented intertrigo of the axillae and groins in which moniliae could not be found. They suggested for these latter lesions the name of moniliatids or moniliids. More recently, Ravaut and his co-workers [25] have made a series of reports in which they bring more definite evidence to substantiate this point of view. They described cases of intertrigo due to yeastlike organisms which showed dry erythematous lesions covered with fine pityriasic scales (eczematiform parakeratoses) from which no fungi could be cultivated. By intracutaneous injections of extracts of the yeasts recovered from the intertrigo, they were able to reproduce in these patients persistent and extending lesions of exactly the same character. They suggested for these the name of levurides.

The following case, which was studied by Dr. B. M. Kesten at the Vanderbilt Clinic, apparently belongs to this category. (This case was presented at the New York Academy of Medicine before the Section of Dermatology.[26])

REPORT OF A CASE

History.—An undernourished, intelligent child, aged 8 years, was admitted to the Vanderbilt Clinic in November, 1929, with the following history: At the age of 11 months, a "cradle-cap," an eruption on the face and white patches on the tongue developed. These symptoms recurred up to the age of 5, when inflammation developed about the finger-nails and a felon appeared on one finger which persisted for about a year. At about the same time an eruption developed in the groins and axillae and in other folds of the skin. The patient became nearly bald at times, although at intervals a growth of fine hair recurred over the scalp. His past history was otherwise unimportant.

The family history stated that his parents had three other children who were living and well, one who was born prematurely and died at 3 months and two who died of "dysentery" at the ages of 5 and 6 months.

Examination.—On physical examination, the patient showed a remarkable appearance. His hair was very fine, sparse and nearly white. Over the occiput

25. Ravaut, P., and Rabeau, H.: Presse méd. **37**:372, 1929.

26. Hopkins, J. G.: Thrush of the Skin, Arch. Dermat. & Syph. **22**:730 (Oct.) 1930.

was an area of 4 cm. where the hair was broken off, leaving a nearly bald area studded with flat papules.

There were crusted fissures at either angle of the mouth (perlèche) and a white patch on the mucous membrane of the right cheek. The tongue was deeply furrowed, bright red and shining in the anterior portion. The gums were soft and swollen. There was an erythema in the intergluteal fold and over the scrotum, with some desquamation. In the antecubital and right popliteal areas were patches of dermatitis with serpiginous borders made up of rows of flat papules, the centers being covered with rather silvery scales. Between and behind

Fig. 1.—Appearance of the patient with moniliid.

the toes there were masses of foul-smelling, sodden, exfoliating epidermis. The skin of the finger webs was macerated and desquamating, and areas of dermatitis extended from these interdigital lesions onto the backs of the hands and feet. A few flat pustules with milky content were observed. There were an acute paronychia of the great toe and a scaling dermatitis on the tips of the fingers and other toes without paronychial swelling. The nails of all the toes and fingers were brownish and transversely ridged. Over the trunk were scattered excoriated papules.

Course.—A few weeks later a wide area of dermatitis developed around the mouth, the center of which was red and slightly moist; the border was sharp and terminated in an overhanging collar of exfoliating epidermis. There was an

Fig. 2.—The hands of the patient in figure 1.

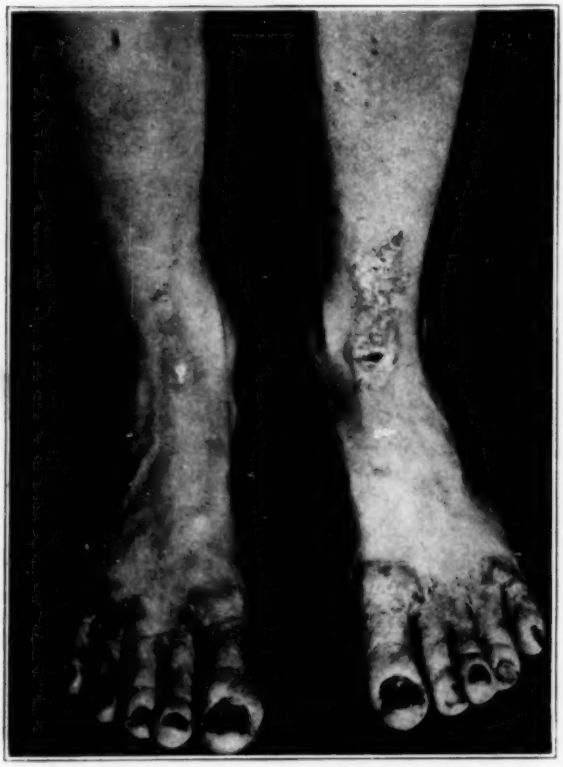

Fig. 3.—The feet of the patient in figure 1.

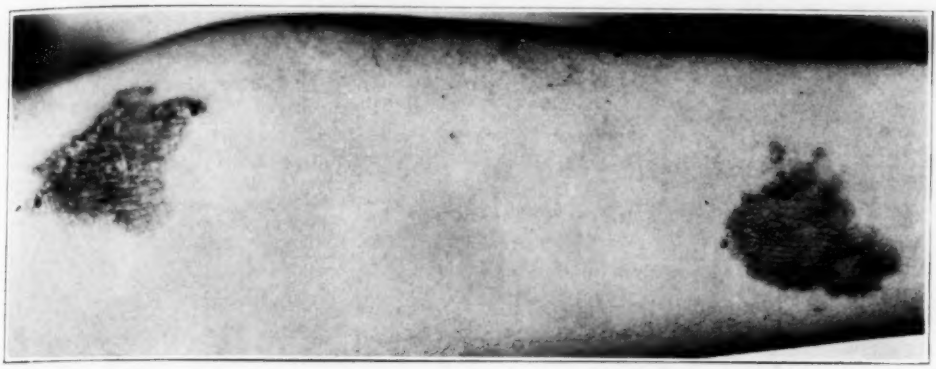

Fig. 4.—The arm of the patient with moniliid. The upper patch is a spontaneous lesion in the antecubital fossa; the lower one, an artificial lesion produced by an injection of extract of monilia.

Fig. 5.—A direct culture from the stools in the case reported. The raised white colonies are Monilia albicans.

intense erythema of the eyelids with slight exudate along the borders, but no marked conjunctivitis. The accompanying figures illustrate later stages of the eruption.

Mycologic Examination.—Direct slide examination from various lesions gave negative results. Cultures from various sources on Sabouraud's honey agar gave the following results:

Hand	Negative
Antecubital fossa	Mold
Popliteal fossa	Negative
Toes	M. candida
Thumb nail	Pink cryptococcus
Toe-nail	Negative
Circumoral dermatitis	M. albicans
Oral mucosa	M. albicans
Blood	Negative
Stool	M. albicans

Subsequent cultures failed to detect M. albicans in the skin lesions, except on one occasion when it was recovered from the hand. On the contrary, it always grew profusely in cultures from the mouth or from the stools.

The child's serum agglutinated M. albicans in a dilution of 1:160. Tests on numerous controls never showed agglutination above 1:10 except in severe monilia infection.

Skin Reactions

Organism	Immediate		Twenty-Four Hour		Late
Monilia albicans (from erosio interdigitalis); extract 10 mg. of nitrogen per cubic centimeter	±	Regular Wheal 1 cm. Flare 7 cm.	+	Erythema 4 cm.	0	
Monilia albicans (from sprue); extract 10 mg. of nitrogen per cubic centimeter	0	Wheal 1 cm. No flare	+	Erythema 3 cm.	+	Patch of coalesced flat-topped papules lasting 2 weeks
Monilia albicans; polysaccharide 1:100,000	+	Wheal 2 cm. Pseudopods	0		0	
Monilia albicans; filtrate of broth culture from patient's mouth (1:10)	±	Wheal 1.5 cm. Flare 3 cm.	+	Erythema 5 by 4 cm. pustule	+	Eczematous lesion extending serpiginously, 2 weeks
Monilia candida; filtrate of broth culture from foot (1:10)	+	Wheal 3 cm. Pseudopods Flare 4 cm.	+	Erythema 7 by 5 cm.	+	Similar eczematous lesion, 2 weeks

Skin Reactions.—Intradermal tests with stock preparations and with the patient's organisms gave the results shown in the accompanying table.

The eczematous reactions that simulated the spontaneous lesions were again obtained when the tests were repeated.

Similar tests with trichophytin and with extracts of M. parapsilosis, M. sitophila, Alternaria, Trichothecium, Trichoderma and Staphylococcus aureus, as well as with a control of sterile broth, gave negative results.

Treatment.—Various local applications were tried. The lesions on the hands and feet cleared when they were painted with 2 per cent alcoholic gentian violet and bathed in 1:5,000 potassium permanganate.

The patient was given a series of injections of a suspension of killed moniliae of his own strain. The dose was increased at each treatment for four weeks. On the last occasion, a severe inflammation was produced at the site of the injection. This was followed by a sudden exacerbation of the skin lesions, which was interpreted as a focal reaction.

The attempt at desensitization was then abandoned. As cultures indicated that the chief focus of infection was in the lower bowel, the child was placed on a diet modeled after that used in the treatment for tropical sprue. Dextrose was substituted for cane sugar. Bread and other cereals, potatoes and other starchy vegetables were excluded. Milk, eggs, meat, fruit and green vegetables were given freely. In the hope of preventing acidity in the colon and so inhibiting the growth of yeasts, calcium carbonate and magnesium carbonate were given in large doses. After a month on this regimen, the lesions on the face disappeared, and those on the arms and legs were greatly improved. The stools still showed moniliae. Later, on abandoning the diet, the patient had a relapse. He has since been lost from observation. While this diet appeared responsible for his improvement, the possibility that the preceding injections of monilia or other factors were responsible should, of course, be borne in mind.

COMMENT

The thick brown nails with their transverse ridges, the paronychia and the dermatitis of the hands, the intertrigo of the fingers, toes, buttocks and elbow flexures and the perlèche, glossitis and gingivitis were all lesions that are frequently associated with infection with M. albicans. Moreover, the character of these lesions—the flat pustules with milk contents, the flattish scaling papules, the wide geographic areas of erythema with their borders of overhanging, partially desquamating, horny layer and the white sodden squamae in the center of the intertriginous lesions—were those found in moniliasis. The alopecia was strikingly like that pictured by MacLeod and Dowling [14] in a case of generalized monilia infection.

The repeated failure to demonstrate M. albicans in most of the cutaneous lesions seemed to rule out a true moniliasis of the skin. The fact that the skin lesions could be reproduced by the injection of sterile extracts of M. albicans suggested another interpretation, viz., that they were produced by the reaction in sensitized areas of skin to specific substances absorbed from the heavily infected gastro-intestinal tract; in other words, that they were moniliids. There is no evidence as to how these areas became sensitized, but their location in regions where moniliae frequently occur suggests that they had become sensitized by previous local infection.

The finding of a closely related organism, M. candida, on the toes and the reproduction of the lesions by extracts of this organism can hardly be explained on the basis of present knowledge.

My reasons for believing that M. albicans caused the cutaneous lesions in this child were:

1. The culture from the mouth and from the stools indicated a heavy infection of the gastro-intestinal tract with this organism.

2. Dietary measures aiming to inhibit the growth of moniliae in the bowel were followed by improvement in the skin lesions, and abandonment of the diet was followed by a relapse.

3. The patient's serum contained agglutinins specific for M. albicans, which showed that he had absorbed and reacted to antigens from this organism.

4. The cutaneous lesions could be reproduced by the intracutaneous injection of sterile extracts of moniliae, but not by extracts of other fungi.

5. A focal reaction in the skin lesions followed a local reaction to subcutaneous injection of monilia vaccine.

SENSITIVITY TO MONILIA ALBICANS

The occurrence of sensitization to moniliae is of interest. Both extracts of the organisms and filtrates of cultures in which moniliae have grown have been used at the Vanderbilt Clinic in the study of the sensitivity in more than two hundred cases of dermatitis. Reactions of the urticarial, delayed inflammatory type and also of the late eczematous type have been observed following intradermal tests. No reactions to patch tests have been obtained. The subject is too complicated to discuss in detail at present. It is of interest to note that positive reactions to M. albicans have been obtained frequently in patients with moniliasis of the skin or of the gastro-intestinal tract. They have also been found in patients with generalized eruptions of the seborrheic type, eruptions apparently similar to those in which yeastlike organisms have been suggested by others as etiologic factors.

ETIOLOGIC SIGNIFICANCE OF YEASTLIKE ORGANISMS

From the many recorded observations it is clear that yeastlike organisms are present with considerable regularity in the group of lesions that have certain common characteristics, which are frequently associated in the same patient. It is, however, by no means certain that the organisms found are always of the same species or that they differ from yeastlike forms normally present in the skin. Consequently, two points of view have developed: one that these lesions are caused by infection with a specific pathogen; the other that they are areas of skin so damaged that any saprophytic yeast is able to grow on them.

The strongest evidence in favor of specific infection is the fact that many of these lesions have been reproduced by inoculation with the yeastlike organisms isolated from them into normal persons. The interdigital erosion has been experimentally produced by Kaufmann-Wolf,[27] Berendson,[28] Stäheli,[29] Greenbaum and Klauder,[30] Jessner and Kleiner,[31]

27. Kaufmann-Wolf, Marie: Dermat. Ztschr. **21**:385, 1914; **22**:441, 1915.
28. Berendson, I.: Arch. f. Dermat. u. Syph. **126**:751, 1918-1919.
29. Stäheli, E.: Arch. f. Dermat. u. Syph. **134**:407, 1921.
30. Greenbaum, S. S., and Klauder, J. V.: Yeast Infections of the Skin, Arch. Dermat. & Syph. **5**:332 (March) 1922.
31. Jessner, M., and Kleiner, S.: Arch. f. Dermat. u. Syph. **149**:363, 1925.

Marengo,[32] Zingale [33] and Kingery and Thienes.[5] Miescher and Stäheli caused lesions by inoculation under wet dressings. Finnerud reproduced perlèche by inoculation with his cultures. Shelmire caused an acute reaction by injecting his cultures about the nail, but could not reproduce chronic paronychia. Cleveland White reproduced typical lesions by the reinoculation of his patients with cryptococci.

The occasional evidence of contagion also favors the view that these lesions are specific infections. Thrush of the mouth frequently occurs in epidemics. The epidemic of paronychia described by Kingery and the group of intertrigos observed by Muijs in the same hospital suggested specific infection. I have observed several instances of paronychia in patients whose occupation involved the handling of fruit. Finnerud's cases of perlèche in an orphanage occurred in the form of an epidemic. The occurrence of dermatitis about the nipples of mothers of infants with thrush has been noted by Kumer, Schamberg and others, and in Pichler's case the nurse of a child with thrush of the conjunctiva developed oral thrush. Dubreuilh and Joulia and Muijs observed balanoposthitis in the husbands of women with intertrigo.

In the majority of cases of cutaneous moniliasis, however, no source of contagion has been determined. The fact that these lesions seldom occur on undamaged skin and that predisposition is important in the establishment of the infections must be admitted. The reproduction of interdigital erosion was possible only after keeping the skin moist. Maceration of the skin by water or by alkali is a definite factor in the clinical occurrence of interdigital erosions and of paronychia. Profuse sweating, the long use of wet dressings and immersion in continuous baths have undoubtedly played a rôle in other cases. The increase in sugar content of the skin and sweat that occurs in diabetes seems of importance in intertriginous thrush infections. The wearing of false teeth is probably a predisposing factor in perlèche and glossitis in adults. It is known, however, that in certain infections the bacterial etiology of which has been clearly demonstrated predisposition plays an essential rôle. For example, tetanus follows the inoculation of tetanus bacilli only if the tissue is damaged sufficiently to favor their growth. The fact that infection with these yeastlike forms occurs only under certain predisposing conditions is no reason for doubting that they produce the lesions.

The chief reason for uncertainty is the lack of knowledge of these yeastlike forms. Many species are parasitic on man. Some of them are pathogenic for animals, and others are not. Presumably they vary in their pathogenicity for man. At present there are no sure means of identifying them and no agreement as to what to call them. Conse-

32. Marengo, G.: Arch. ital. di dermat., sif. **1**:464 (May) 1926.
33. Zingale, M.: Gior. ital. d. mal. ven. **64**:929 (Aug.) 1923.

quently, it is impossible to tell whether the organisms found by different investigators in different lesions are the same and whether they differ from those found by others on normal skin. As Bloch [34] has recently emphasized, little progress can be made in the study of these diseases until the uncertainties in classification and nomenclature of the parasites are cleared up.

For any clear understanding one needs:

1. An accurate definition of the species of yeastlike organisms.
2. Methods by which they can be identified.
3. Agreement as to such definitions and methods and also as to terminology.

CLASSIFICATION OF YEASTLIKE ORGANISMS FROM THE SKIN

The extensive studies of Castellani and of Ashford have added much to the knowledge of these organisms, but have not yet developed methods by which species may be objectively recognized.

I shall refer briefly to recent studies by Dr. Benham [35] at the Vanderbilt Clinic, because they seem to have helped to clarify the classification of yeastlike parasites. Two methods have been of value.

Identification by Agglutination.—As previously reported,[36] it is easy to obtain sharp agglutination reactions with most yeastlike forms in the serums of immunized rabbits. Group reactions are encountered, but by means of reciprocal absorption of the agglutinins it is possible to establish with a degree of certainty the antigenic identity or dissimilarity of various strains. Such tests have the advantage of being simple and objective and less open to individual differences in interpretation than are morphologic studies.

Identification by Morphology.—The parasites also show differences in morphology that serve to classify them. The grouping arrived at by observation of their forms corresponds well with that obtained by agglutination.

Cornmeal agar, a medium much used by botanists, has proved of special value in studying the morphology of yeastlike organisms. Like other fungi, these organisms vary in appearance under different conditions. This particular medium has several useful properties. It stimulates mycelial formation in strains that show only budding forms on sugar-containing mediums. It induces the production of ascospores more regularly than any other of the mediums tried. On this medium M. albicans develops characteristic spore clusters and chlamydospores that are of aid in the identification of this species.

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34. Bloch (footnote 11, second reference).

35. Benham, R. W.: Certain Monilias Parasitic on Man, J. Infect. Dis. **49**:183 (Sept.) 1931.

36. Hopkins, J. G., and Benham, R. W.: New York State J. Med. **29**:793 (July) 1929.

The fermentation reactions of the strains studied could be correlated in general with morphologic and antigenic characteristics, but brought out minor differences between them that did not seem of pathogenic significance.

When studied by these methods, the following types have been differentiated among yeastlike organisms obtained from skin lesions:

1. Monilia albicans. The strains obtained from skin are indistinguishable in their morphology and agglutination reactions from strains isolated from thrush and from sprue. The organism is probably identical with those called Oidium albicans, Endomyces albicans, Monilia psilosis and Monilia pinoyi.
2. Monilia candida. This is a species or group of species closely related to M. albicans.
3. Monilia parapsilosis.
4. Monilia krusei.
5. Saccharomyces cerevisiae.
6. Willia anomola.
7. Cryptococci. Probably many species of this genus have not been differentiated.
8. Mycodermas. Probably several species of this genus have not been differentiated.

The pathogenicity of these types for animals is of interest. Strains of M. albicans from various sources were found to be virulent for rabbits when injected intravenously. They caused the death of the animals, with the development of characteristic miliary abscesses in the kidneys. None of the other types mentioned was pathogenic when so injected in the same dose.

In regard to terminology, the name Monilia albicans has been retained for the thrush organism because it is the one currently employed in medical writings. Botanists justly object to the use of this term on the grounds of priority, because the name Monilia was given by Persoon to saprophytic fungi totally unrelated to the thrush organism. A proper botanical nomenclature for these organisms cannot, however, be devised until their perfect stages are observed. It seems useless, therefore, to introduce new names until a permanent terminology can be established.

OCCURRENCE OF YEASTLIKE ORGANISMS IN HEALTH AND IN DISEASE

Observations at the Vanderbilt Clinic have shown that M. albicans is present with great regularity in erosio interdigitalis, mycotic paronychia, perlèche and the associated glossitis and intertrigo of the thrush type. It occurs abundantly in the mouths and the stools of patients with moniliasis of the skin. Stool cultures were recently made from nine cases of paronychia, and all showed a profuse growth of Monilia albicans.

In regard to its occurrence in health, the observations are limited and can be reported only in a preliminary way. It occurs with some fre-

quency in the mouths and intestines of normal persons. It may well occur on normal skin. However, in the small series of healthy persons so far studied, M. albicans has not yet been found on the fingers or the toes.

The other species mentioned are obtained occasionally from skin lesions, but usually in mixed culture with M. albicans. They are present with some frequency on normal skin, especially on the toes. I have as yet obtained no evidence that any species except M. albicans is pathogenic for man.

INFECTION OF THE GASTRO-INTESTINAL TRACT

The presence of M. albicans in the gastro-intestinal tract of patients with moniliasis of the skin would explain the chronicity of the cutaneous lesions and their frequent recurrence. It would seem difficult to cure the skin lesions while a focus of infection remains in the alimentary canal. The dietetic treatment for fungus infections of the skin has been discussed by Buchanan.[37] My attempts in cases of moniliasis have not succeeded in eliminating this parasite from the intestine, although clinical improvement has sometimes followed measures designed to restrict its growth. It would seem, however, that some method must be developed of combating the intestinal infection if one is to cure moniliasis of the skin.

SUMMARY

1. The evidence accumulated by many investigators indicates that organisms related to yeasts are the cause of a number of common dermatoses.

2. Recent studies show that at least a majority of these are caused by one well defined species, Monilia albicans. This is the same species that has been found in thrush of the mouth and in intestinal sprue.

3. The more common skin lesions, interdigital erosion, paronychia and perlèche, are so frequently associated that they apparently constitute one disease, moniliasis of the skin.

4. The intertriginous forms and the vulvitis occur chiefly in diabetes.

5. The fact that patients with moniliasis of the skin harbor the parasite in their alimentary tracts suggests that this focus is a factor in the occurrence and persistence of the skin lesions.

6. Sensitization to M. albicans occurs. In a few cases the conclusion seems justified that skin lesions in sensitized persons result from absorption of substances produced by moniliae in the alimentary tract or some other focus of infection. Further study is necessary to determine whether such sensitization to alimentary infection is a frequent or an important factor in the causation of dermatoses.

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37. Buchanan, J. A.: South. Med. & Surg. **92**:166, 1930.

A SEARCH FOR A NEW METHOD FOR THE DETERMINATION OF THE FUNGICIDAL ACTION OF CHEMICALS

PRELIMINARY REPORT *

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AND
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The following studies were made because dermatologists in using fungicidal chemicals are concerned with two specific attributes: (1) fungicidity of the chemical in tolerable concentration and (2) penetrability to the layer of the epidermis in which fungi live and thrive. The usual laboratory procedures, of directly contaminating culture mediums with minimal concentrations of fungicidal chemicals, or of dipping fungous masses in dilutions of such chemicals for varying periods of time before seeding the masses on mediums, do not furnish practical data relative to either of the two aforementioned properties of the chemicals tested.

To know that iodine, in a certain dilution, when intimately dispersed through a medium, might render the medium fungistatic or even fungicidal is of less value to the dermatologist than to know that iodine painted on the skin in nonirritating concentration might be expected to reach fungi beneath that surface and destroy them. We sought to devise, therefore, a technic for the estimation of the fungicidal activity of chemicals based on this latter conception.

In dermatophytosis the application of a salve to the skin may be conceived of as the juxtaposition of two semisolid bodies, one containing the fungi and the other the fungicide, with no intimate mingling of fungus and fungicide at the point of contact. We aimed, therefore, to approximate, in vitro, this physical condition.

EXPERIMENTAL PROCEDURE

The chemicals to be tested were dissolved in flexible collodion U. S. P. We selected a 1 per cent concentration of the chemical, though any concentration to the limit of skin toleration might have been used. The medicated collodion was then applied to a clean dry culture tube in the usual manner of producing a membranous lining to the inner surface of the whole tube. The amount of collodion used for this was on an average 0.5 cc.; thus, dispersed throughout the membranous lining

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* From the Department of Dermatology and Syphilology, University and Bellevue Hospital Medical College, service of Dr. Howard Fox.

of each tube, was approximately 5 mg. of incorporated chemical. The membrane was allowed to dry thoroughly. Then the warm agar medium (Sabouraud's dextrose agar, 10 cc.) was poured into the tube and permitted to solidify in slant. The center of the slant surface was then seeded with the fungous mass, and the tubes plugged and incubated at room temperature.

In all of these experiments, five organisms were used, as indicated in the accompanying tables. The cultures of organisms were six weeks old on an average at the time of transplantation. Every experimental transplantation was accompanied by one in a control tube.

TABLE 1.—*The Effect on the Nurturing Value of Mediums After Momentary Contact with Medicated Collodion Membranes*

Organism	Tetraiodomethenamine and Thymol	Iodine	Thymol	Plain Collodion
Aspergillus niger	++*	++	++	++
Microsporon lanosum	++	++	++	++
Epidermophyton inguinale	++	++	++	++
Trichophyton gypseum	++	++	++	++
Achorion quinckeanum	++	++	++	++

* ++ equals normal growth.

TABLE 2.—*The Influence on Fungus Growth of Medicated Full Membrane Linings to Culture Tubes**

Organisms	Tetraiodomethenamine and Thymol	Iodine	Tetraiodomethenamine	Thymol	Arning's Tincture	Salicylic Acid	Benzoic Acid	Boric Acid	Sodium Chloride	Plain Collodion
Aspergillus niger	+	++	++† / ++	0† / +	++	++	++	++	++	++
M. lanosum	0	0† / ++	0 / ++	0 / 0	++	0	0	+	++	++
E. inguinale	0	0 / 0	++	0 / 0	++	0	0	+	++	++
E. gypseum	0	0 / 0	0 / ++	0 / 0	++	0	0	+	++	++
Achorion quinckeanum	0	0 / 0	0 / 0	0 / 0	++	0	0	0	++	++

* 0 equals no growth; +, delayed growth; ++, normal growth.
† These marks represent results of a second test with the same solutions ten weeks after they were made. Iodine and iodine compounds lose their strength on standing.

Preliminary control experiments were necessary, first, to show that the collodion membrane per se did not destroy fungus. Table 2 (last column) brings this fact out. Though the plain membrane tends to delay the onset of growth, it never inhibits or stunts it. Second, it was necessary to demonstrate that the act of pouring the warm fluid medium into the membrane-lined tube did not wash enough chemical into the medium to render it fungicidal. This was done by pouring mediums into tubes containing medicated membranes and then immediately repouring the mediums, still fluid, into sterile-tubes containing no membrane. Mediums so poured and hardened should on seeding always exhibit luxuriant growth. Table 1 indicates that such was always the case.

As we were satisfied on these two points, we continued our studies on the basis that influence on fungus growth was effected through the agency of the medicated membrane. It is to be noted that as the fungous mass lies on the surface of the hardened slant, it is exposed to forces via two approaches: (1) from above the medium, where the membrane was uncovered by medium (approximately 75 per cent of the membranous surface), and (2) through the medium from the membrane immediately in contact with it (approximately 25 per cent of the whole membranous surface). To study each of these influences, we prepared tubes only partially lined with membranes: (1) some with the membrane in the upper half of the tube alone and (2) others with membranes only in the lower half, so disposed as to be completely covered by the slant medium.

Before turning to our experimental findings, we may with advantage discuss the phraseology of fungicidal studies previously reported and their equivalents under our experimental conditions. Schamberg and Kolmer,[1] in 1922, introduced the technic for fungicidal studies mentioned in our introductory paragraph. They studied fungistatic values of chemicals through dilutions of mediums with chemicals and expressed fungistatic strength in terms of the minimal concentrations of the contaminant effective for inhibition. Thus, they reported salicylic acid as fungistatic with from 1 part in 50 of medium to 1 in 150, depending on the organism used. Under our experimental conditions, a total of 5 mg. of chemical is available, and with 10 cc. of medium present, we must consider the maximum contamination possible to be 1 part in 2,000. Where the experiments indicated that only the membrane in direct contact with the medium is effective and this but 25 per cent of the total membranes, we must consider the possible contamination of the medium as approaching 1 part in about 10,000 as maximal.

Furthermore, Schamberg and Kolmer used a separate procedure for the determination of fungicidity; that of suspending fungous masses in different dilutions of chemicals to be tested for varying periods of time and then transferring loops of these suspended fungi to culture mediums to determine their viability. Since viability is demonstrable only through growth, in laboratory practice, fungicidity is fungistasis maintained indefinitely. There need be no separate technic for the demonstration of the production of each state if a single procedure can effect one or the other result. Our experimental conditions did so effect the results, and our final proof of fungicidity was a retransference of the fungous masses (showing no growth after eight weeks under destructive conditions) to control tubes for an ultimate decision as to viability.

FINDINGS

Tests were made with the following chemicals, all in 1 per cent concentration in flexible collodion (Arning's tincture excepted), with

1. Schamberg, J. F., and Kolmer, J. A.: Studies in the Chemotherapy of Fungous Infections, Arch. Dermat. & Syph. **6**:746 (Dec.) 1922.

membranes completely lining the tube: tetraiodomethenamine, thymol, iodine, salicylic acid, benzoic acid, boric acid, sodium chloride and finally, Arning's tincture, a mixture containing 2 per cent iodine and tarry materials dissolved in alcohol and ether and capable of drying on the inner surface of a tube after the fashion of collodion. The organisms used were Aspergillus niger, Microsporon lanosum, Epidermophyton inguinale, Trichophyton gypseum and Achorion quinckeanum. Aspergillus niger (table 2) showed a distinctly superior vitality, its

TABLE 3.—*Comparative Values of Membranes in the Upper and Lower Halves of Tubes in Effecting Fungistatic Action*

	Tetraiodomethenamine		Thymol		Salicylic Acid	
Organism	Upper Membrane	Lower Membrane	Upper Membrane	Lower Membrane	Upper Membrane	Lower Membrane
Aspergillus niger	++	++	++	+	++	++
M. lanosum	++	+	+	0	++	0
E. inguinale	+	0	0	0	++	0
T. gypseum	++	++	0	0	++	0
Achorion quinckeanum	+	0	0	0	++	0

TABLE 4.—*Results of Retransplantation of Inhibited Fungous Growths to Determine Fungicidity*

Organism	Chemical	Time of No Growth, Before Retransplantation, Weeks	Period of Time Observed After Retransplantation, Weeks	Results
T. gypseum	Tetraiodomethenamine and thymol	14	12	0
M. lanosum	Tetraiodomethenamine and thymol	14	12	0
Achorion quinckeanum	Tetraiodomethenamine and thymol	14	12	0
T. gypseum	Iodine	10	12	0
A. quinckeanum	Iodine	10	12	0
T. gypseum	Tetraiodomethenamine	12	12	0
M. lanosum	Tetraiodomethenamine	12	12	0
A. quinckeanum	Tetraiodomethenamine	12	12	0
Aspergillus niger	Thymol	14	10	++

growth being influenced by thymol alone, the action of which was only fungistatic. All other organisms responded in an identical manner to the different chemicals with the following results: a complete inhibition of growth after the use of thymol, tetraiodomethenamine, a combination of the first two, salicylic acid, benzoic acid and iodine; a delayed growth after boric acid, and an unrestricted growth after sodium chloride and Arning's tincture.

With tetraiodomethenamine, thymol and salicylic acid, membranes in the upper and lower halves of tubes, as indicated in table 3, showed that only thymol could effect fungistasis with an upper half membrane.

Table 4, giving the results of retransplantation in control tubes of fungous masses that appeared after ten weeks of complete inhibition,

showed: (1) Aspergillus niger able to grow luxuriantly and hence only a fungistatic action of thymol, and (2) no power for further growth in all the other organisms the growth of which had been inhibited by the chemicals tested, a true proof of the fungicidity of the original inhibiting environment.

COMMENT

It is the consensus of clinical experience that Whitfield's ointment is the most efficient single topical remedy in the treatment for dermatophytosis. This fact stands as a challenge to the laboratory of chemotherapeusis. The Schamberg and Kolmer studies despair of an explanation. The indications are clear that a different technical approach to satisfactory laboratory explanations of the facts of the clinic is highly advisable.

In our attempt to imitate the clinical demands on a therapeutic agent by incorporating it in a membrane surrounding the medium, we were presented with an apparent paradox. Salicylic and benzoic acids, for example, so disposed became many times more effective as an inhibitor of fungous growth than when dispersed through a medium, or, indeed, when allowed to act directly on fungi in an equivalent dilution for a reasonable length of time.

The phenomena herein reported are strange and disconcerting not alone in the light of results with similar chemicals under other experimental conditions, but when analyzed in terms of the all-important factor of control experiments. We were careful to introduce all controls that we thought would lead to an evaluation of the collodion membrane per se and considered the incorporated chemical when in the membrane as in solid solution in an inert milieu. We fear, in the face of our astonishing findings, that we must seriously question this inertness. Naturally, such a doubt marks our experiments as improperly controlled and disqualifies deductions therefrom. In short, as we are unable to say that the particular chemical within the membrane is responsible, through the operation solely of its own chemistry, for the phenomena produced throws the explanation wide open. We can offer many hypotheses, but all need the test of experimentation for proof or disproval. The desultory and somewhat incomplete manner of our tests up to this time has been purposeful. We sought information for a wide series of hypotheses as a basis for future studies. These we propose to undertake at once.

ABSTRACT OF DISCUSSION

ON ARTICLES BY DRS. SHARLIT AND MUSKATBLIT AND DR. HOPKINS

DR. HOWARD FOX, New York: Drs. Sharlit and Muskatblit very properly tried to imitate clinical conditions and incorporated the chemical to be tested in a col-

lodion membrane lining the culture tube. The results with the active ingredients of Whitfield's ointment were astonishing and difficult to interpret, their action being much more fungistatic than when incorporated in the medium (as in the method of Schamberg and Kolmer), or when placed in direct contact with the fungus. It is hoped that further studies will lead to the discovery of a method that will closely parallel clinical conditions.

Dr. Hopkins recalled the numerous types of eruptions in which moniliae are found and said, I think rightly, that they are the probable cause of a number of common skin diseases. Moniliae and other yeastlike organisms may, of course, be primary causative agents, secondary invaders or merely saprophytes. The evidence he gave of cutaneous lesions being caused by sensitization from monilia in the gastro-intestinal tract seems reasonable.

Dr. Fred D. Weidman, Philadelphia: As to Drs. Sharlit and Muskatblit's paper, it is difficult to parallel in the test tube exactly what goes on in the skin. We can get closer to nature only in what the test tube offers. The effort of the authors is certainly welcome. You may recall that Gould reported that benzoic and salicylic acids work better together than separately (Fungistasis in Ringworm of the Toes and of the Feet, Arch. Dermat. & Syph. **22**:225 [Aug.] 1930).

In connection with Dr. Hopkins' splendid paper, may I call attention to the plurality of organismal species in thrush? I think Castellani noted thirteen different ones. Do not forget that infantile thrush (concealed pharyngeal and esophageal cases) may be diagnosed in the course of routine examinations of feces. From the investigative angle, diabetic dogs were found liable to experimental inoculation with thrush organisms while healthy dogs were not. This offers an excellent field for the investigation of yeast infections in general, as we attempt to check up on laboratory animals.

Dr. Hopkins also brought up the necessity for experimental studies of yeasts in general. Only those who have gone more deeply into fungus problems can appreciate the immense amount of work that must be done as they attempt to appraise pathogenicity in a case. For the yeast cells the best test is thought to be by injection into mice and observation of the effects on the kidney. This is bad practice; we should remember that these effects are not comparable to those on the human skin.

Dr. Albert Strickler, Philadelphia: On listening to the various papers, the one great impression conveyed is the tremendous importance of the question of hypersensibility. It has not been a great many years since the question of hypersensibility was limited to the problem of drugs. The advance of this great and most important problem includes the relationship of poisoning to idiosyncrasy and the most important problem—important because of being widespread—the Trichophyton fungus infection. We are faced with a peculiar problem, because there are many conditions on the skin, particularly on the hands, the etiology of which seems to be more or less uncertain. It is uncertain in the sense that we have no definite test that will determine whether the lesion is due to a Trichophyton infection, whether we are dealing with a mild or severe hypersensitiveness or whether a trauma of some kind is responsible.

In the solution of this problem, we shall be rendering an important duty to the dermatologists and to the general practitioners. At the Skin and Cancer Hospital, we have attempted in the past several months to carry out cutaneous tests with trichophytin. Unfortunately, perhaps due to experimental error, so many were positive that we could not believe our results. An important fact to

keep in mind is the peculiar idiosyncrasy of the skin. Equally important in this connection is the effect of drugs applied locally or taken internally. The crux of the whole subject revolves around the method by which we may obtain a reaction on the skin that will give a true etiologic index. To me, the question of hypersensibility and the question of finding a true and reliable cutaneous test for these Trichophyton infections present the important factors for our consideration.

DR. GEORGE M. MACKEE, New York: Dr. Hopkins brought out an important practical point that should receive further attention, the possibility of a monilia focus in the intestines and dissemination through the blood stream followed by allergy.

It seems to be generally agreed that dermatophytosis has increased rapidly during the past decade, and that it is still increasing. It has become more frequent with the increase of population, and there may be a percentage increase, but I am inclined to believe that the increment is more apparent than real, and that the greater prevalence of the disease today is mostly due to better knowledge and better diagnostic methods. When I was a young dermatologist, I saw innumerable cases of what we now call dermatophytosis, but which was then called eczema, pompholyx, etc. Several of the speakers mentioned the important subject of allergy. Bacteria and fungi of many varieties are tolerated in the absence of susceptibility, sensitization, idiosyncrasy and allergy. The same is true of various other proteins, chemicals and drugs. But in the presence of susceptibility, lowering of immunity, sensitization, etc., an abnormal reaction occurs which may be recognized as a clinical entity. These allergic or immunologic changes may be local, general, temporary, permanent, fluctuating, etc.

DR. GEORGE M. LEWIS, New York: Dr. Hopkins' clear exposition on the subject of yeast infections is timely and should do a great deal to stimulate further research. We should feel grateful to him for helping to simplify the nomenclature of yeast infections. The hypothesis that the gastro-intestinal tract is a focus in many instances is interesting and plausible. It might also serve to explain many of the mycotic eruptions on the hands and elsewhere, obviously of a secondary character, but in which no demonstrable focus can be found.

I have found the investigation of yeast infections difficult work, not so much in not being able to demonstrate them culturally, as in their repeated presence in material from nonmycotic dermatoses and their supposed presence as contaminants in culture tubes in association with known pathogenic dermatophytes.

The positive skin reactions in Dr. Hopkins' patient to intradermal injections of extracts of Monilia albicans are significant and with the negative response to other mycotic extracts suggest a specificity that apparently does not exist in epidermophytosis. The ordinary stock "trichophytin" is polyvalent and does not contain T. interdigitale, which is the commonest cause of epidermophytosis in this country. In many instances, however, a positive reaction develops following a patch or intradermal trichophytin test in patients who exhibit a T. interdigitale infection.

DR. CHARLES M. WILLIAMS, New York: Some of the pictures of monilia of the feet shown by Dr. Hopkins are counterparts of pictures that I have shown as examples of tinea. They emphasize Weidman's statement that the clinical diagnosis in such cases should be "infectious intertrigo," and that an etiologic diagnosis, like tinea or moniliasis, should be made only after laboratory examination, often by culture. There is one class of eruption that is apparently always caused by monilia—intertrigo between the fingers—and the patients often also

have intertrigo under the breasts, and an eruption at the angles of the mouth, from all of which monilia may be recovered. I believe that we shall be able to establish here a clinical type with a definite etiology.

Dr. J. C. Michael, Houston, Texas: Like Dr. Strickler and Dr. Williams, I found that in using a commercial preparation of trichophytin in a dilution of 1:50 as a diagnostic measure, so many subjects gave positive reactions that the value of the test was vitiated. It struck me that the situation was similar to that with the tuberculin test, and that the application of Martenstein's principle of serial dilutions with tuberculin could be applied to trichophytin. I have used dilutions of 1:50, 1:100 and 1:500, so far in only a small number of cases and in a preliminary way. In some cases it has been surprising to see the marked reaction elicited by the higher dilutions. I do not know yet whether the serial dilution method will give information of significant value, but I feel encouraged to continue the investigation. It is apparent already that many people have extremely high sensitivity to trichophytin. To me this explains the dermatophytid manifestations on the hands in cases that show only insignificant primary foci in the nails or on the intertriginous areas of the feet.

Dr. F. J. Eichenlaub, Washington, D. C.: In the Veterans' Bureau in Washington, we have examined about 6,000 patients admitted to the hospital, mostly men. Among these we found what Dr. Williams calls interdigital infection in many instances, and exactly one third of this group presented other evidences of ringworm infection, dermatitis or vesicular eruptions of the hands or feet, or tinea cruris. This seems to indicate that about 7 per cent of the population of the country may be expected to present clinically important evidence of these infections.

Dr. H. Feit, New York: I have been interested in Dr. Sharlit's paper, and without knowing of his experimental work, I have for years treated patients with Whitfield's formula incorporated in collodium to make the application easy and to avoid heat and moisture.

This brings me to another point, that we should not attempt to cure these patients with local applications only. There must be something else in these ringworm infections, and it seems to me that hyperhidrosis of the feet, together with the sugar in the tissue, plays a great rôle; for if you give these patients a diet low in starch and keep the skin dry, your results will be excellent.

Another point is that of allergy in fungus diseases. In every patient who has a fungus infection and at the same time another dermatosis, we must not think that it is always attributable to this infection. We showed a case before the Academy section in a man who was sensitive to cake dough, but not to bread dough; he had trichophytosis on his feet. The eruption on his hands cleared up when he came in contact with bread dough only, irrespective of his ringworm infection, which was not treated.

The fourth point I wish to stress is treatment with trichophytin. Trichophytin might have great diagnostic value, but I am not so optimistic as to its therapeutic value. We treated patients in this way ten years ago without any effect; however, there is another remedy, a compound iodide solution to be taken internally: iodine (metallic), 1 grain (0.065 Gm.); potassium iodide, 5 grains (0.324 Gm.); distilled water, 3 ounces (100 cc.); dose, 1 drachm (3.90 Gm.) three times a day.

Dr. Herman Sharlit, New York: In answer to Dr. Templeton's remarks, I might say that the treating of fungus-infected tissue instead of fungus masses themselves with fungicidal chemicals in the effort to determine fungicidal effi-

ciency is essentially no different from the method of Kolmer and Schamberg. In practice, we cannot bring the chemical in most intimate contact with the infected mass, and it is for this reason that we are seeking a method for judging fungicidity that permits fungus destruction at a distance.

DR. J. G. HOPKINS, New York: Dr. Weidman brought up the question of plurality of species in thrush. The few strains that we have isolated from this disease and also strains from the American Type Culture Collection labeled Monilia albicans and Endomyces albicans all show the same morphologic and agglutinative characteristics. In about 90 per cent of cases of moniliasis of the skin, we find strains that are indistinguishable from these. Colonel Ashford sent us strains of Monilia psilosis isolated from sprue, and these showed the same characteristics. A "levure" sent us by Dr. Ravaut and a strain of Monilia pinoyi obtained from Dr. Castellani through the American Type Culture Collection also seemed identical with Monilia albicans.

The same strain may vary from time to time in its fermentative reactions. Under different cultural conditions, strains appear to differ. However, when grown under constant conditions, their morphology is indistinguishable, and when agglutinated in specific serums, their antigen content seems the same.

Consequently, we believe that in all these diseases we are dealing with one distinct species.

As to the other species mentioned, we see them occasionally in skin lesions, but almost always in mixed culture with Monilia albicans. We find them with almost the same frequency in entirely normal skin, and have as yet obtained no evidence that these other organisms are pathogenic.

OCCUPATIONAL MELANOSIS

WITH REPORT OF A CASE *

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MILWAUKEE

In selecting the title, it is recognized that melanosis in itself cannot be considered separately from many other intimately associated pathologic processes and that it probably rarely, if ever, occurs alone as a direct result of occupation. The scope of this study is concerned with the occupationally acquired dermatoses in which pigmentation due to increased melanin formation is an important or outstanding feature. Excluding the compensatory melanosis developing in response to undue exposure to sunlight or direct heat rays in otherwise normal persons in the course of their occupations, almost the entire group of conditions that may be classed under the foregoing title occurs in workers in petroleum or coal tar components or derivatives. In view of the constantly increasing diversity of these industries and the wide distribution of their products, the subject promises to become one of growing interest and importance.

As early as 1876, Manouvriez [1] described the various cutaneous charges, including pigmentation, that may occur from exposure to fumes from hot tar or to dust from pitch, but the subject received little further attention until during and following the World War. Interest in the subject was then especially stimulated by Riehl's [2] description of a group of seven cases presenting melanosis involving the face, scalp, folds of the breasts, groins and elsewhere, together with follicular keratosis. Argyria was excluded as a cause, as was also occupation in these cases; however, their probable pathogenesis is of interest in the subject under discussion. Riehl thought that the patients owed their pigmentation to the ingestion of photocatalyzing substances in the "horse-bean," which was used as a substitute for grain in the manufacture of wartime flour in the central European countries.

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* Read before the Section on Dermatology and Syphilology at the Eighty-Second Annual Session of the American Medical Association, Philadelphia, June 14, 1931.

1. Manouvriez, A.: The Diseases and Hygiene of Workers in Mixtures of Coal Pitch, Ann. d'hyg. **45**:459 and 575 (May) 1876.

2. Riehl, G.: Ueber eine eigenartige Melanose, Wien. klin. Wchnschr. **30**:780 (June 21) 1917.

Similar cases were noted and studied by a number of other German and Austrian physicians, especially Hoffmann and Habermann,[3] who called the condition "melanodermatitis toxica" and who were agreed with Riehl as to the likelihood of endogenous origin, but believed that they occurred through the ingestion of photosensitizing tar derivatives. These substances, reaching the skin through the hematogenous route, were thought to cause changes characterized first by inflammation and later by intense pigmentation, finally developing a marked clinical resemblance to occupationally acquired "pitch-skin." Blaschko[4] attributed Riehl's melanosis to the substitution of mineral greases for butter and margarine in the wartime dietary, and incriminated toxic substances in the greases. Riehl, on noting that some of his cases showed marked keratoses later, thought that an endogenous factor was also probable, and in their own cases Hoffmann and Habermann noted areolar depigmentation about the follicles such as follows frequent external contact with tar, especially in hot weather. Bettmann[5] noted pigmentation of the parts exposed to light in workers handling wartime grease substitutes, the pigmentation following an acute inflammatory process. A clinical resemblance to lupus erythematosus was suggested. Similar cases were described by Oppenheim.[6] Barnewitz[7] described a series of cases in 1928 in which skin changes clinically like those of Riehl's "war-melanosis" were found, occurring in coal miners who had worked for ten years or more at this occupation, and for the most part at high temperatures. While clinically similar to those of Riehl, Barnewitz felt that they differed etiologically, as his cases were probably without the factor of light sensitization, the changes occurring over the covered parts in many instances as well as on the face, and because in most of the cases the pigmentary change was preceded at varying intervals by inflammatory

3. Hoffmann, E., and Habermann, R.: Arzneiliche und gewerbliche Dermatosen durch Kriegsersatzmittel (Vaseline, Schmieröl) und eigenartige Melanodermatitiden, Deutsche med. Wchnschr. **44**:261 (March 7) 1918. Habermann, R.: Ueber die sogenannten Kriegsmelanosen und ihre Beziehungen zu der Teer- und Schmierölschädigungen der Haut, Dermat. Ztschr. **30**:62 (Jan.) 1920.

4. Blaschko, A.: Dermat. Ztschr., supp., vol. 26, 1918, p. 2; general discussion of war melanoses by members of the Berlin Dermatological Society at the special war session of March 26-27, 1918.

5. Bettmann, S.: Ueber Schädigungen der Haut durch Ersatzöle und -Salben, München. med. Wchnschr. **65**:1344 (Nov. 26) 1918.

6. Oppenheim, M.: Ueber eine durch unreines Vaselin als Salbengrundlage verursachte Hauterkrankung, Wien. klin. Wchnschr. **29**:1293 (Oct. 12) 1916.

7. Barnewitz, J.: Beobachtungen über den Einfluss von Gaskohle und Steinkohlenpech auf den menschlichen Organismus nebst experimentellen Beiträgen über die Wirkung von Steinkohlenpech bei weissen Mäusen, Dermat. Ztschr. **54**:582 (Nov.) 1928.

reaction. Barnewitz believed that the effect on the skin resulted from ingested and inspirated coal dust as well as from that making direct contact with the skin. This belief was substantiated by his experimental work with white mice.

O'Donovan [8] noted deep pigmentation of the exposed parts in yard workers handling crude anthracene with direct exposure to its dust, while the factory workers concerned with packing the distillation products showed no skin changes whatever. Those operating the stills for periods of four or five years also showed increased pigmentation, which developed insidiously during that period. In the same group of workers, it is interesting to note that among twenty-five employees, three developed squamous cell epitheliomas of the exposed parts. Melanoderma of sudden onset occurring in battery workers was described by Arnstein,[9] seven occupants of one room being affected. They were employed at assembling dry cells and were constantly exposed to and inhaled fumes of melted tar in an ill ventilated room. Lortat-Jacob, Legrain and Cleret [10] described reticulated pigmentation of the forehead, neck, feet and great flexures with the histologic features of Riehl's melanosis in a locomotive engineer. Perspiration was considered as a contributory factor, with photodynamic substances in the soot and coal dust to which the patient was exposed as the probable direct etiologic factor. Hudelo, Rabut, Cailliau and Mornet [11] observed melanosis of the exposed parts, also of covered regions, in a railroad worker handling creosote-impregnated ties. The involved areas showed the typical clinical and histologic features of Riehl's melanosis; the process was of several months' duration, although the patient had been at his employment for only one year.

Freund [12] described a case of melanosis in a man employed at handling a tar-containing sealing wax. Riehl's type of melanosis, together with oil folliculitis and follicular hyperkeratosis, was found in a lathe worker by Sézary, Vallery-Radot, Pasteur and Benoist.[13] No

8. O'Donovan, W.: Cancer of the Skin Due to Occupation, Arch. Dermat. & Syph. **19**:595 (April) 1929.

9. Arnstein, A.: Ueber gewerbliche Teermelanose, insbesondere bei der Trockenbatterie-Fabrikation, München. med. Wchnschr. **67**:902 (July 30) 1920.

10. Lortat-Jacob; Legrain, and Cleret: Riehl's Melanosis in a Locomotive Engineer, Bull. Soc. franç. de dermat. et syph. **33**:20 (Jan.) 1926.

11. Hudelo; Rabut; Cailliau, and Mornet: Melanosis Occurring in a Railway Grade Worker Handling Creosote-Impregnated Ties, Bull. Soc. franç. de dermat. et syph. **34**:144 (Nov.) 1927.

12. Freund, E.: A Case of Melanodermatitis Toxica Lichenoides et Bullosa (Hoffmann), Gior. ital. di dermat. e sif. **69**:1525 (Dec.) 1928.

13. Sézary; Vallery-Radot; Pasteur, and Benoist: Riehl's Melanosis, Oil Papules, and Follicular Hyperkeratosis Occurring in a Lathe-Worker in Metal, Bull. Soc. franç. de dermat. et syph. **34**:139 (March) 1927.

evidence of endocrine disease, sources of arsenic ingestion, etc., could be determined. Acute erythema followed by pigmentation has been commonly noted in briquet, tar and anthracene workers in the Ruhr district. Data concerning these cases, collected by Ullmann,[14] revealed that for the most part seasonal or day laborers were affected, and that the incidence was especially high in summer, the symptoms sometimes manifesting themselves after only a few hours of work in strong sunlight. Workers who through ignorance or indifference did not carry out the usual prophylactic measures were chiefly affected, and blondes suffered over brunettes in the ratio of 70:30. However, only after a long period of such work did the typical picture of tar or "pitch-skin" develop, with its characteristic follicular plugging and hyperkeratosis, with occasional papulopustulation, and ultimate grayish-brown pigmentation (in some instances, reddish brown owing to associated capillary dilatation), and sometimes with verrucous papulation and ultimate epitheliomatous degeneration. Similar cases produced by pitch, oils, etc., have beeen described by Ravaut and Vibert,[15] Mornet[16] and others. McCafferty[17] presented a case of erythema and pigmentation occurring in mottled form over the exposed parts, the condition developing during the month of August while the patient was employed at handling a creosote-containing composition. The patient worked in the open air with the forearms exposed to the sun. Burnier and Eliascheff[18] described a case occurring in a woman who presented typical findings of Riehl's melanosis. The condition was considered to be due to photodynamic substances in the tar distillate products that the woman handled.

Reports of etiologically analogous cases of inadvertently acquired pigmentation, not due to occupation, are not infrequently encountered in the literature. Dermatitis followed by pigmentation in so-called "berlock form" due to the photodynamic action of toilet waters on exposed parts, in most instances apparently due to oil of bergamot, was first described by Freund[19] in 1916, and later by Hoffmann and

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14. Ullmann, K.: Die Schädigungen der Haut durch Beruf und gewerbliche Arbeit, Leipzig, Leopold Voss, 1926, vol. 2, p. 248.

15. Ravaut, P., and Vibert, J.: Two Cases of Follicular Keratosis with Oil Papules in One Case and Melanosis in the Other, Bull. Soc. franç. de dermat. et syph. **34**:214 (April) 1927.

16. Mornet, J.: Concerning a Special Type of Melanoderma (Riehl's Melanosis; Poikilodermie Reticulaire), Bull. méd., Paris **42**:121 (Feb. 1) 1928.

17. McCafferty, L.: Melanoderma, Arch. Dermat. & Syph. **16**:781 (Dec.) 1927.

18. Burnier, M., and Eliascheff, O.: A Case of Riehl's Melanosis, Arch. dermat.-syph. de l'hôp. St. Louis, Paris **1**:182 (March) 1929.

19. Freund, E.: Concerning a Hitherto Unreported Type of Artificially Produced Cutaneous Pigmentation, Dermat. Wchnschr. **63**:931 (Sept. 30) 1916.

Schmitz,[20] Zurhelle,[21] Lane and Strauss [22] and others. Gross and Robinson [23] and others have described the same condition following the use of perfumes on exposed parts. Reports of hyperpigmentation similarly occurring after topical medication with tar derivatives, also following intravenous injection, especially of trypaflavine, are also encountered. Negroid pigmentation of the exposed parts following injection of trypaflavine, a derivative of acridine, has been described by Noltenius,[24] and from acriflavine hydrochloride by de Aja.[25] Hyperpigmentation after topical application of benzine has been described by Urbach,[26] from tumenol by Frieboes,[27] from carboneol by Herxheimer,[28] etc. Irritation and pigmentation also resulted from the use of impure petrolatum in the central European countries during the World War.

In many of the occupational cases quoted, as well as in others, the clinical similarity of the skin changes to those produced by arsenic was noted, and its possible etiologic position questioned, especially in those cases in which direct exposure to coal and pitch dusts and to crude tar takes place. In fact, Bayet [29] stated that arsenic constitutes the chief causal factor in the pigment production. From his experiments he concluded that only the arsenic content of coal, which is mixed in the form of dust with tar residues, pitch, asphalt, etc., to form briquets, and not the air-borne constituent parts of the tar as such, induces the production of pigmentation, hyperkeratosis and the like. He held the

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20. Hoffmann, E., and Schmitz, H.: Concerning Linear and Mottled Pigmentation Following Strong Insolation and Sprinkling with Perfumed Spirits (Cologne Water), München. med. Wchnschr. **72**:1414 (Aug. 21) 1925.

21. Zurhelle, E.: Experimental Investigation Concerning the Action of Cologne Water on the Human Skin, München. med. Wchnschr. **75**:723 (April 27) 1928.

22. Lane, J., and Strauss, M.: Toilet Water Dermatitis, with Especial Reference to "Berlock" Dermatitis, J. A. M. A. **95**:717 (Sept. 6) 1930.

23. Gross, P., and Robinson, L.: Berlock Dermatitis: Unusual Dermatitis and Pigmentation Following Use of Perfume, Arch. Dermat. & Syph. **21**:637 (April) 1930.

24. Noltenius, F.: Two Cases of Injury to the Skin from Trypaflavine and Intensive Insolation, München. med. Wchnschr. **74**:1497 (Sept. 2) 1927.

25. de Aja, E. Alvarez Sainz: Melanoderma Due to Acriflavine Hydrochloride, Progresos de la clín. **37**:485 (Aug.) 1929.

26. Urbach, E.: Case Presentation, Zentralbl. f. Haut- u. Geschlechtskr. **28**: 761, 1929.

27. Frieboes, W.: Vaseline and Tar Injuries to the Uncovered and Light-Exposed Skin, Dermat. Ztschr. **24**:641 (Nov.) 1917.

28. Herxheimer, K.: Concerning Light-Sensitization of the Skin Due to Carboneol and Resultant Dermatitis Solaris, Dermat. Ztschr. **24**:385 (July) 1917.

29. Bayet, A.: Dermatologic Evidence of Identity of Tar Diseases and Arsenical Intoxication, L'cancer **1**:165, 1924; abstr., Zentralbl. f. Haut- u. Geschlechtskr. **16**: 36, 1925; Tar Cancer and Arsenic Cancer, L'cancer **1**:5, 1923; abstr., Zentralbl. f. Haut- u. Geschlechtskr. **15**:165, 1925.

pitch-skin to be a sequel to the arsenical poisoning, similar to what occurs in chimney-sweeps' cancer, wherein contact with soot that is particularly high in arsenic content is of etiologic importance. Bayet called attention to the occurrence, in both groups of conditions, of melanoderma, either universal or in the form of small macules, ephelides, pigmentation of the sclerae, lichenoid papules, circumscribed and ill defined inflammatory plaques with hyperkeratoses in some areas and with macular atrophy in others, and also of telangiectasia and xerodermatous or senile atrophy of the skin. He stated also that the carcinomas that follow arsenic and tar are similar. Bayet expressed the belief that the otherwise rare conjunctival pigmentation occurring in both classes of cases is especially significant of a common etiology.

In refutation of the foregoing, Vossenaar [30] showed that in the Limburg region coal workers' "pitch-skin" was very uncommon, although these workers showed four times the arsenic content of the urine over that of the briquet workers, in whom the syndrome was common. He referred the skin changes to active constituent substances in the pitch. By animal experimentation, Fibiger [31] was able to produce typical changes like those caused by tar and pitch with arsenic-free tar. Schärer [32] investigated conditions in the pitch mills and found that the workers' skins became impregnated with creosote-containing naphthalene, forming a tarlike mass in the stratum corneum. Ullmann [33] expressed the belief that the association of the pigmentation with the arsenic component of the tars is unlikely, and he pointed in his argument to the absence of neuritis and other symptoms of arsenical intoxication in all these cases, which rarely show findings other than those in the skin, with the exception in some cases of a small, firm, painless lymphadenitis, suggesting the syphilitic type.

Because of the clinical similarity in spite of the varying etiologic factors, Ullmann expressed the belief that injuries to the skin from oils and tar and its derivatives may result from either internal or external absorption, and that these injuries differ quantitatively rather than qualitatively. Their chief clinical differentiation lies in the fact that the oil and grease dermatoses are characterized especially by hyperkeratotic and follicular changes, while those due to tar and its derivatives are prone to exhibit hyperpigmentation.

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30. Vossenaar, A.: Researches Concerning Diseases from Pitch in Briquet-Workers, Nederl. tijdschr. v. geneesk. **16**:1686, 1923; abstr., Zentralbl. f. Haut- u. Geschlechtskr. **9**:208, 1924.

31. Fibiger, quoted by Ullmann (footnote 14, p. 253).

32. Schärer, R.: Occupational Skin Disease in Briquet-Makers, Schweiz. med. Wchnschr. **51**:296 (March 31) 1921.

33. Ullmann (footnote 14, p. 252).

White [34] stated that the products of coal and petroleum distillation are more apt to produce cutaneous irritation than those of wood, oleoresins, cotton and other seed oils, and the like, which also contain tar and pitch in their residues. That there is a difference in content of photodynamic substances in tars from various regions is stated by Koelsch,[35] and this fact would explain the comparative absence of cases similar to those described in this country, as he stated that American tars are comparatively lacking in photodynamic constituents. Kennaway [36] also stated that American petroleums are poor in carcinogenic substances. In the latter case, however, the carcinogenic factors can be increased by distillation at unusually high temperatures, and it would seem possible that the photodynamic action might be increased in the same way, as there is an apparent parallelism between the two factors. With the increasing use of high temperatures and pressures in distillation and "cracking" processes in the petroleum industry, an increase in cases of injury from exposure to American petroleum products might be looked for.

In general, the distillation products of petroleum and coal are closely analogous. From petroleum, at temperatures of 150 C. or under, gasoline, naphtha, crude benzine, etc., are obtained; between 150 and 300 C. kerosene, paraffin and crude lighting and combustion oils come over, while at 300 C. or over, lubricating oils, greases, petrolatums, waxes and residue containing tar, pitch and asphalt are found. The various fractions are redistilled to obtain the different constituent substances in pure form. It is important, however, that many of the commercial products, especially of the third fraction and particularly during the World War in the central European countries, were impure mixtures containing members of one or more fractions. The same held true for the distillation products of coal to an even greater degree. From this distillation between 80 and 130 C., naphtha, crude benzine, toluene, xylene, phenol, naphthalene, etc., are obtained; between 120 and 210 C., carbolic or middle oil containing phenol and naphthalene comes over; between 210 and 280 C., heavy creosote oil is obtained, and anthracene oil between 280 and 400 C., while the residue consists of pitch. Kennaway stated that the last three fractions contain the carcinogenic substances, and while from the European literature it is found that the last two contain photodynamic substances, from the

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34. White, R. Prosser: Occupational Affections of the Skin, London, H. K. Lewis & Company, 1928, p. 237.

35. Koelsch, F.: Die Schädigungen der Haut durch Beruf und gewerbliche Arbeit, Leipzig, Leopold Voss, 1926, vol. 2, p. 303.

36. Kennaway, E.: The Anatomical Distribution of the Occupational Cancers, J. Indust. Hyg. **7**:69 (Feb.) 1925; Brit. M. J. **2**:564 (March 29) 1924.

consideration of the case to be described, it would appear that such substances are contained also in the second fraction, and even in the first.

Clinically, from the substances of the first fraction in both distillations, skin changes are characterized by erythema, superficial inflammation followed by scaling, vesiculation and sometimes pustulation. From the second fraction of the petroleum series may appear skin changes recognized as comedones and folliculitis, often with some perifollicular proliferation, perifolliculitis, abscesses and scarring; papular or pustular eczema may supervene. From the third fraction of the petroleum series, and from the last two and possibly the second fractions of the coal tar series, may result erythroderma, pigmentation, xeroderma, lichenoid papulation, atrophy, keratoses and eventually papillomas and epitheliomas. It is with the third type of condition, especially with reference to the pigmentary phase, that the present discussion is concerned.

Owing to the paucity of reported cases of melanosis of the types described in the American literature, either of occupational or of non-occupational origin, the following case report, together with its associated experimental work, was considered worthy of report at this time.

REPORT OF CASE

History.—J. S., a white man, aged 37, single, a chemist, was first examined on March 6, 1930, being referred because of hyperpigmentation of the face and neck of about one month's duration. The patient had been a chemist for thirteen years, and all but the first year had been spent at his present place of employment. During the first eight years of this employment he had acted as research chemist, handling various inorganic and organic substances used in the manufacture of dyes, but he did not handle finished dyes. During the past four years he had been employed as department head in charge of the production of naphthalene acids and vat dye intermediates. His work was almost wholly of a supervisory nature. Throughout his career as a chemist there had been no cutaneous manifestations preceding the onset of his present condition. This had been insidious, the first symptoms noted being very mild dryness and pruritus of the skin of the face and neck beginning about Nov. 1, 1929. These changes were sufficiently troublesome to cause him to consult his plant physician on November 11, a lotion containing phenol, menthol, glycerin, calamine and water being supplied. The condition then subsided, and the patient was not troubled further until the latter part of December, 1929, when similar symptoms again appeared, continuing until February, 1930, during which month the pigmentation was first noted. This was observed first by the patient's associates, who advised him repeatedly that his face and neck appeared dirty. Between the time that the hyperpigmentation was first noted and the patient's first visit, the discoloration had progressively deepened. Preceding and during the course of the condition there had been no internal medication other than a few doses of mercurous chloride two weeks preceding his first visit; the patient was not in the habit of using cosmetics, facial applications consisting only of toilet soap, shaving soap and talcum powder; scalp preparations and perfumes were not employed.

The patient had not been exposed to artificial ultraviolet light or to unusual amounts of sunlight, e.g., in sunbaths, etc., since the preceding summer. He was an habitual golf player, usually becoming moderately tanned each summer, which usually occurred without marked preceding erythema. His outdoor habits, however, made it likely that he had been exposed to sunlight during the winter months at least as much or more than the average person. His general health was uniformly very good, and no constitutional symptoms of any kind accompanied the cutaneous changes.

When the condition was first closely observed by the patient, he noted that the lids, forehead and upper part of the cheeks showed a blotchy, muddy brown discoloration without appreciable redness or other evidence of inflammatory reaction than the slight scaling mentioned, which by then had begun to disappear. During the period of observation by the patient, the pigmentation extended and deepened,

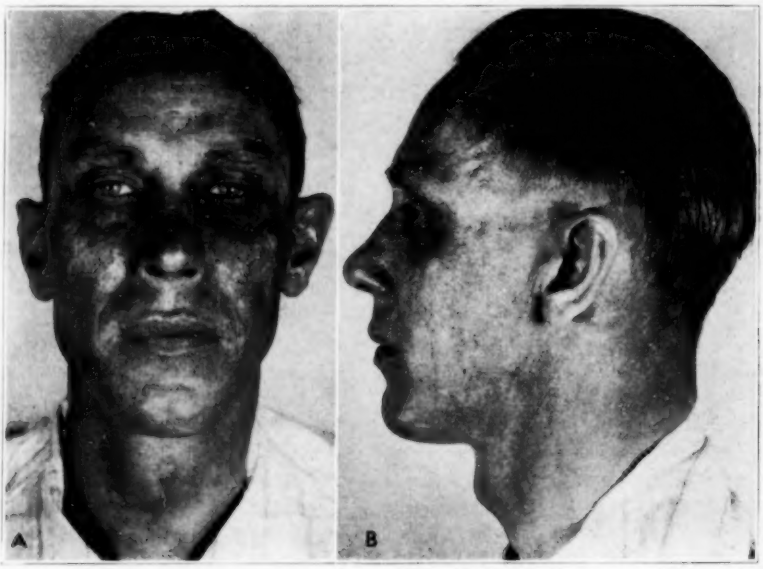

Fig. 1.—Photographs of the patient when first seen. *A*, note the deep pigmentation of the peripheral portions of the lids, nose and nasolabial folds. *B*, note the freckle-like arrangement of the areas of deepest pigmentation on the alae of the nose, also the faintly shown reticulate arrangement of pigmentation on the sides of the neck and the mandibular regions.

and the skin became somewhat roughened, especially over the forehead, owing to follicular hyperkeratosis.

Examination.—Examination revealed a young-appearing adult of good development and nutrition who did not appear ill. The hair was medium dark brown, normal in texture and amount. The eyes were light brown. The skin of the covered portions of the body was normally moist and soft, without unusual pigmentary change either in degree or in distribution of pigment, and the creases were free from unusual pigmentation or grossly visible acanthotic change. The nails showed no abnormality. The mucous membranes appeared normal and revealed no gross pigmentation. The gingival margins were free from discoloration.

The skin of the face and neck showed a diffuse and symmetrically disposed dark, grayish-brown pigmentation, which left off rather abruptly at the collar line. On the sides of the neck and in the preauricular regions, there was a slight reticulate arrangement of the pigmentation. The condition ranged in intensity from a light chocolate brown or café au lait shade in the lower part of the cheeks and mandibular regions to a drab grayish-brown over the lids, especially their peripheral portions, about the upper part of the forehead and the anterior hair line, and in the nasolabial folds and the lateral portions of the upper lip. The skin of the forehead showed faint but definite follicular hyperkeratosis, also to a lesser extent over the upper part of the cheeks and the nose. There was no evidence of erythema or telangiectasia. Clinical evidence of scaling was absent. The skin of the hands showed uniform and moderate residual tanning from the previous summer, but no other noticeable change.

Examination of the blood showed: hemoglobin, 105 per cent; red cells, 5,100,000; white cells, 9,700; differential count: polymorphonuclear neutrophils, 65 per cent; eosinophils, 2 per cent; small lymphocytes, 26 per cent; large lymphocytes, 5 per cent; large mononuclears, 2 per cent. The blood pressure was 128 systolic and 76 diastolic. The urine was normal.

Biopsy.—A specimen was taken for biopsy from the skin of the left side of the neck. Hematoxylin and eosin sections revealed slight intracellular edema of the epidermis and moderate follicular hyperkeratosis. The dermis showed little change other than that referred to the pigmentary disturbance. Silver and pyronine methyl green preparations showed considerable pigmentary activity without marked pigment deposit in the basal layer cells. Melanoblasts were abundant along the basal layer, and chromatophores containing much pigment were numerous in the superficial dermis. Vacuolization of the melanoblasts produced a pseudo-edematous appearance at the dermo-epidermal junction. A moderate amount of pigment was found in the malpighian layer. No marked vascular or connective tissue changes were found.

Etiologic Considerations.—In the production of naphthalene acids and vat dye intermediates, the patient was exposed directly or indirectly to aniline, naphthalene, benzene, toluene, phthalic anhydride, benzanthrone, tetralin, alizarin, anthraquinone, chlorbenzanthrone, ortho-benzoylbenzoic acid, various amino-naphthol-sulphonic acids of naphthalene and their salts, various mineral acids, sulphur dioxide and trioxide, various bases and sodium bisulphite. Arsenic and silver were not encountered in any form. Owing to the supervisory character of his work, the patient's direct contacts were only occasional, hence his greatest exposure was largely to the fumes of the more volatile substances, occurring principally when, owing to the fact that various operations were not proceeding smoothly, his close personal attention to the apparatus at fault was needed. Ordinarily such attention was required only occasionally. Direct contact with the mineral acids and more active members of the rest of the group had never been sufficient to produce any evidence of irritation previous to the present trouble.

In an effort to determine as accurately as possible the offending agent or agents, the skin was tested directly to all the organic substances to which the patient was exposed. This was carried out by the application of two series of skin tests applied to the skin of the abdomen, one directly, the other followed by ultraviolet irradiation. In the direct tests a solution of the various chemicals in gasoline was painted on the skin over an area one-half inch (1.27 cm.) square, and as soon as the solvent had evaporated, leaving the crystals or powder of the test material in a thin layer on the skin, a dry gauze bandage was applied with adhesive tape. No scarification was employed. In the irradiation tests, the same procedure was carried

out, with the exception that following evaporation of the solvent and immediately preceding bandaging, a suberythema dose of ultraviolet rays, produced by an air-cooled mercury vapor quartz lamp, was administered to the test areas. In both series the bandages were allowed to remain undisturbed for eighteen hours. The reaction of the patient's skin to adhesive tape was negligible.

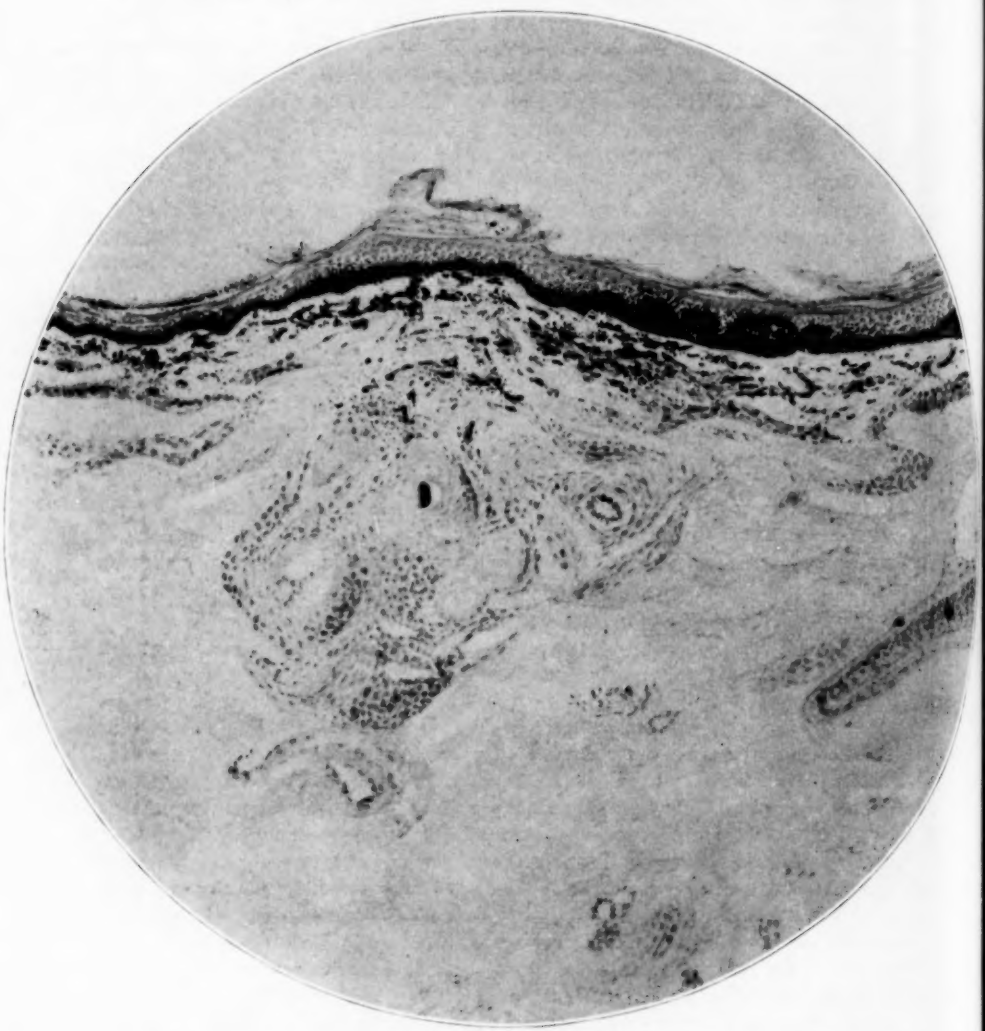

Fig. 2.—Drawing of a low power field of a section stained with silver nitrate and pyronine methyl green, showing the distribution of pigment activity along the basal layer. Note the area of hyperkeratosis overlying the follicular apparatus. Preparation by the courtesy of Dr. S. W. Becker.

The reactions in both series to aniline, tetralin, toluene, alizarin and chlorbenzanthrone were negative. Nitrobenzolsulphuric acid produced no reaction when applied without irradiation, and only mild erythema without subsequent pigmenta-

tion at the irradiated site. Benzoylbenzoic acid produced moderate erythema at the sites of both applications, but with an appreciable degree of papulation at the irradiated site. No pigmentation followed its application. Phthalic anhydride produced moderately severe erythema and papulation at both sites, very slightly more marked at the irradiated site, but without subsequent pigmentation.

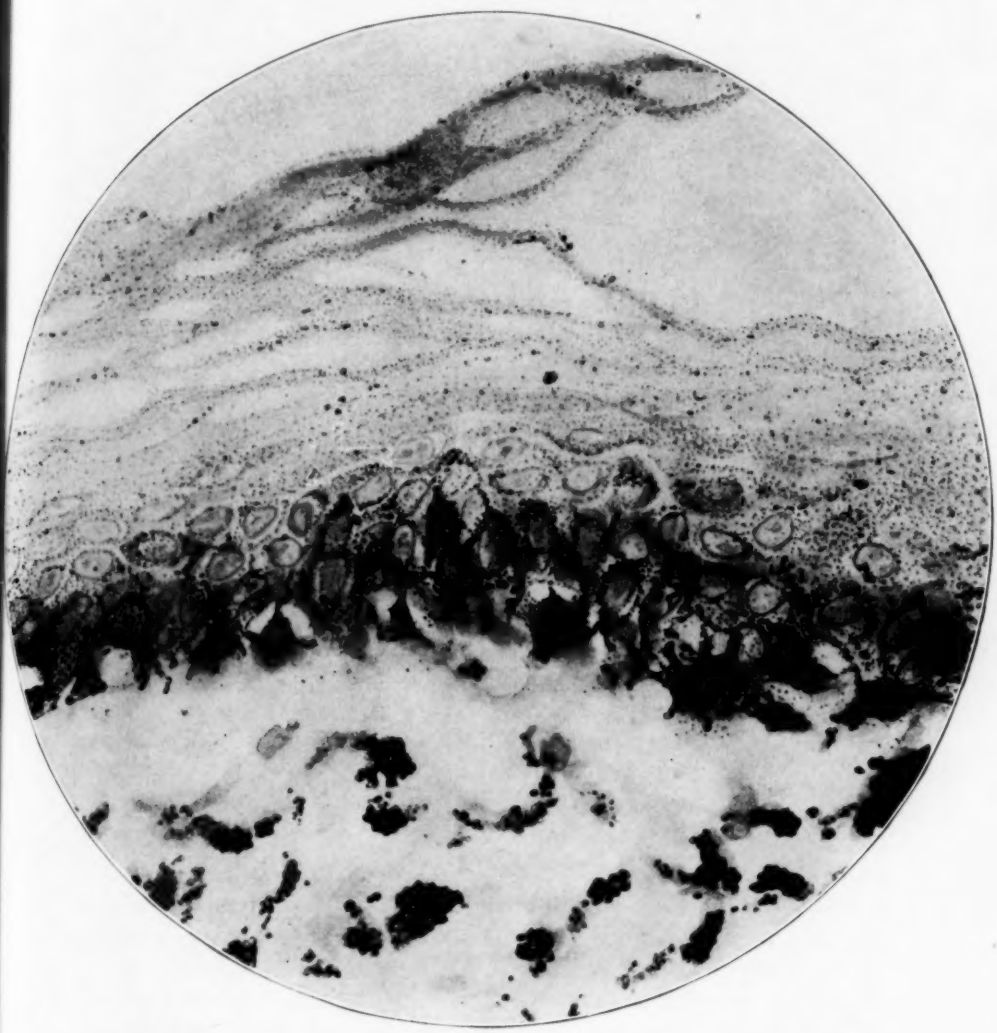

Fig. 3.—Drawing of a high power field of a section stained with silver nitrate and pyronine methyl green. Note the numerous melanoblasts at the dermo-epidermal junction and the profusion of chromatophores in the upper dermis. Preparation by the courtesy of Dr. S. W. Becker.

The benzanthrone encountered by the patient contained 5 per cent of anthraquinone. The tests to this material produced moderate erythema at the unirradiated site and severe erythema and vesiculation at the irradiated site. The former reac-

tion was followed by faint pigmentation and the latter by very deep pigmentation, lasting over a period of months in both instances. Tests were then made to pure benzanthrone and to pure anthroquinone. The former produced similar but much milder results than when tested to the combined substances. Tests to the anthraquinone alone showed no visible reactions at either site.

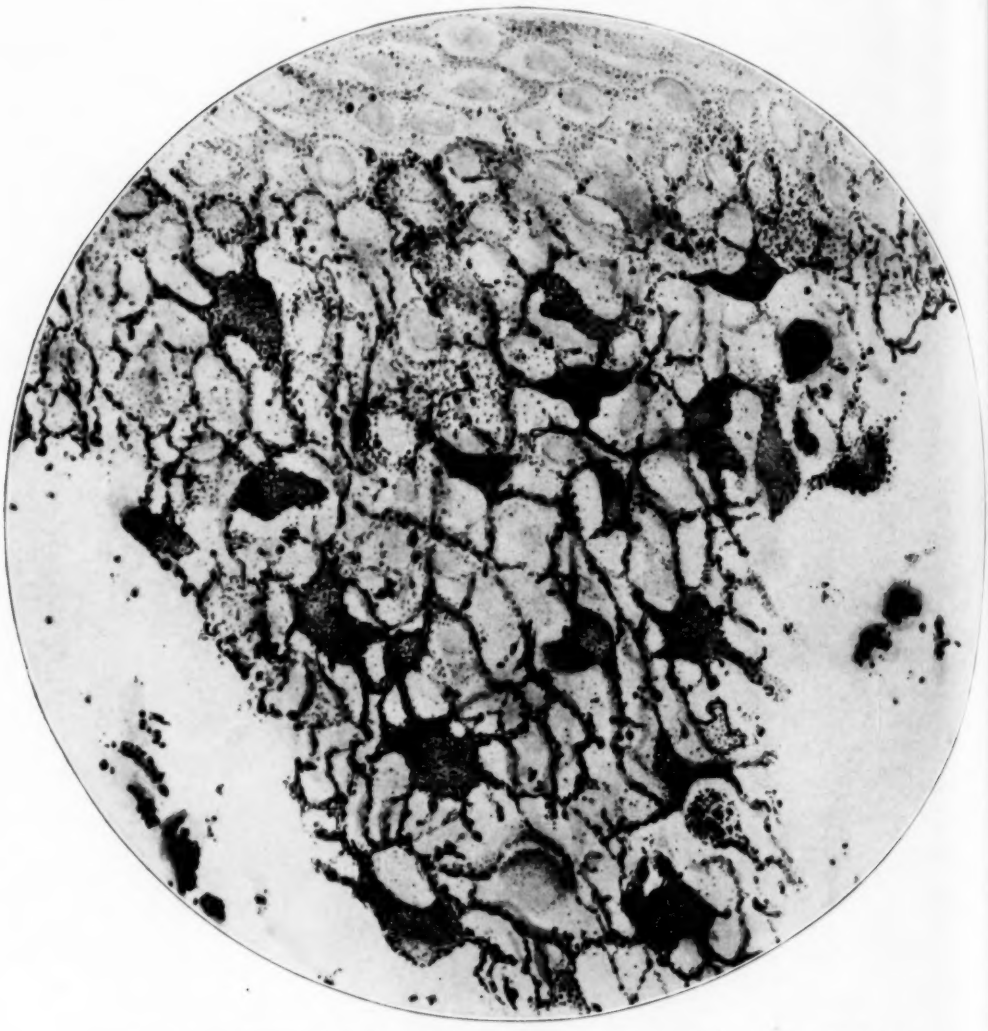

Fig. 4.—Drawing of a high power field of a tangential section of a hair follicle, stained with silver nitrate and pyronine methyl green. Note the numerous dendritic cells. Preparation by the courtesy of Dr. S. W. Becker.

The naphthalene handled was a pure white crystalline substance with the characteristic odor and of a quality commercially regarded as chemically pure. However, while it was known to be free from any contamination by chemical substances of known composition, the patient stated that it contained a minute trace of an

impurity of unknown chemical formula which could be removed by repeated resublimation, but was allowed to remain as it seemed to have a catalytic effect in certain chemical processes in which naphthalene was used in his plant. The skin was therefore tested to the naphthalene commonly used by the patient, as well as to a sample of the pure substance free from the impurity mentioned, secured from the United States Bureau of Standards. The tests in which the impure substance was used showed no reaction at the unirradiated site, but showed severe erythema at the irradiated site which was followed by deep brown, persistent pigmentation. The sample obtained from the Bureau of Standards produced no reaction at either site.

The tests showing positive results were repeated on the skin of the back with similar but milder results, and on the skin of the abdomen one month later, again with similar but less marked effect. In the case of all the test substances, tests were also performed at sites irradiated immediately preceding application of the chemical in question, the same dosage of ultraviolet light being administered as in the tests previously described. In all cases in which inflammatory reactions occurred at the unirradiated sites, they occurred similarly and in most cases more acutely when application of the chemical followed irradiation, but only in the case of the benzanthrone-anthraquinone compound was the reaction followed by pigmentation similar in type and degree to that following the reaction to the same chemical when applied without preceding or subsequent irradiation. In the case of the impure naphthalene and the nitrobenzosulphuric acid, mild inflammatory reactions resulted following the applications when preceded by irradiation, whereas no reaction was visible at the unirradiated sites. These results were interpreted solely as demonstration of the fact that with these substances, as well as with other potential irritants, the skin is sensitized to their irritant action by previous ultraviolet irradiation.

Interpretation of Reactions.—Of the foregoing tests, the reaction to the benzanthrone-anthraquinone combination and its separate components and to the commercial and pure naphthalene were considered to be of etiologic interest. The nature of the reactions to the commercial naphthalene indicates a definite photosensitizing effect, since on direct application without ultraviolet light reaction was absent, while deep pigmentation followed its application with subsequent irradiation. That the photosensitizing effect was not due to the action of the naphthalene alone is demonstrated by the absence of reaction to the Bureau of Standards product, and would lead to the conclusion that the photosensitizing effect is due either to the unknown impurity or to chemical reaction of the naphthalene with the tissues in which the unknown substance acts as a catalyst.

In respect to the known effects of naphthalene on the human skin, few cases of ill effects have been reported, most of those reported probably resulting from impure commercial mixtures. However, Rambousek [37] stated that it may irritate the skin, and Pulay [38] described a case of definite and very marked hypersensitiveness to the substance. White [39] stated that it may irritate the mucous membranes. The nitronaphthalenes, according to Koelsch,[40] are rarely irritating, but the chlorination products are extremely irritant.

37. Rambousek, J.: Industrial Poisoning, translated and edited by T. M. Legge, London, E. Arnold, 1913, p. 173.

38. Pulay, E.: Sensitization and Eczema, Med. Klin. **20**:708 (May 25) 1924.

39. White (footnote 34, p. 270).

40. Koelsch (footnote 35, p. 328).

In the case under discussion, further detail of the clinical history is of interest at this point. Correlation of the patient's schedule of operations and the evolution of his dermatosis revealed that he was exposed to the fumes of naphthalene in the process of sulphonation during the month of October, 1929, to an extent never previously experienced by him. The itching and scaling were first noted during the latter part of October and early November. He did not encounter these fumes during November, during which period his symptoms almost completely disappeared. During December, similar operations were resumed, and during the latter part of the month the scaling and itching recurred. This contact was again discontinued about Jan. 1, 1930, following which the dryness, scaling and pruritus slowly disappeared, hyperpigmentation ensuing with the involution of the inflammatory symptoms. No history of other unusual exposures could be elicited. This factor of unprecedented exposure to naphthalene plus the results of the skin tests would indicate a possible etiology in this substance or in its impurity.

White did not cite anthraquinone or benzanthrone as direct causes of irritation. Koelsch stated that benzanthrone and chlorbenzanthrone may produce acute eczema, aggravated by exposure to light. The same author quoted Bachfeld as describing eczema in workers with anthraquinone, but Koelsch was not familiar with skin irritation from the pure substance. As noted, the tests to the combined substances produced inflammatory changes followed by pigmentation at both sites, most marked when application was followed by irradiation. Anthraquinone alone produced negative results, while pure benzanthrone produced milder but similar results to those produced by the combination. Obviously, photodynamic action was exhibited by the benzanthrone, and, while possibly some of the hyperpigmentation was due to post-inflammatory pigment where the substances were tested in combination, it is probable that the presence of the anthraquinone contributed directly to the pigment production. According to Mayer,[41] quinones, which are formed as intermediate products in the formation of melanin from propigments, may unite with cell albumins to form pigments chemically indistinguishable from melanin. If this theory of pigment formation is correct in vivo, the foregoing result might be explained by the presence of the anthraquinone supplying an excess of "propigment" material, with completion of the pigment-forming process stimulated by the photodynamic action of the benzanthrone.

Concerning the photodynamic action of tar derivatives, Ullmann[42] quoted Tappeiner, Jodlbauer and their co-workers as stating that certain of these have definite photosensitizing power. Not only in monocellular and micro-organisms, but also in the protoplasm of the higher animals, including man, they may produce functional and structural changes under the influence of light. Among substances of this type,

41. Mayer, R.: Ueber die melanotischen Pigmente, Klin. Wchnschr. **7**:2471 (Dec. 23) 1928.

42. Ullmann (footnote 14, p. 247).

according to these investigators, thiazime and thiazone, oxyzime and oxazone, or azine as it is sometimes called, and less markedly fluorescein, eosin, erythrosin and hematoporphyrin may be classed with acridine, xanthone and the anthracene and anthraquinone groups, together with many other similar chemical groups possessing photodynamic action in varying gradations.

Pitch and coal tar and their watery solutions contain such substances, especially those of the acridine, anthracene and anthraquinone groups. The most important of these, however, is acridine itself. Lewin extracted these substances from tar with hot acidified water, also with alcohol and acetone, and observed that tar extracted in this way lost its harmful effect, but regained it on addition of the extracted substances. Through repeated moistening of the human skin by these substances in the presence of sunlight, producing internal disturbances whereby the skin becomes sensitized, pigmentation ensues as a defense mechanism against further irritation from light. Similar phenomena are observed in the autotoxic so-called pellagroid conditions. Alcoholism markedly increases this sensitization, according to Koelsch, while the pigmentary process is augmented by the presence of perspiration, poor hygiene, friction and the like.

The enhancing effect of perspiration in the production of pigmentation from photosensitizing substances was demonstrated by Zurhelle,[21] who found that in testing the skin of malarial patients to various cologne waters and ultraviolet light, the presence of profuse perspiration greatly increased the resulting pigmentation. Simple maceration of the skin with physiologic solution of sodium chloride did not have the same result. Alkalinity also favors hyperpigmentation, according to Bloch, and while the presence of acid perspiration would appear to be inimical to the production of pigmentation, Marchionini [43] has shown that there is a variation of the hydrogen ion concentration of the perspiration of various parts of the body, and in different strata of the epidermis in any one area. In general, alkalinity is greatest where the evaporation of perspiration is hindered, while in any one area the reaction changes from varying degrees of acidity on the surface of the skin to alkalinity in the lower layers of the prickle cell and basal layer. The contributory effect of friction to pigmentation is well recognized. The alkaline reaction of the perspiration from the apocrine glands, as contrasted with the eccrine, together with the effects of friction and prevention of evaporation, probably accounts for the natural hyperpigmentation of the genitalia, axillae, breasts in women and elsewhere.

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43. Marchionini, A.: Physical-Chemical Researches on Eccrine and Apocrine Sweat, Schweiz. med. Wchnschr. **58**:1055 (Oct. 27) 1928.

Peck,[44] working with gray rabbits, demonstrated that simple irritation, whether chemical or mechanical, calls forth some pigmentary response, even in the absence of light, but that hyperpigmentation is probably the summation of two irritants, chemical and actinic, of which the latter is a sine qua non in its production. He also showed that this effect diminishes in intensity from quartz light through sunlight to ordinary room light. He expressed the belief that the action of the irritating chemical is not a direct one on the pigment-forming apparatus, but is in the nature of an activator or catalyst of the melanogenic ferment. This is demonstrated by the fact that pigmentation does not begin until the inflammatory reaction has reached its peak and begun to subside.

The effect of poor hygiene on hyperpigmentation lies in the untoward effect of accumulation of photosensitizing and irritating materials on the skin.

PREVENTIVE MEASURES

Koelsch[45] recommended the night operation of processes wherein exposure to photosensitizing substances takes place, especially in the handling of pitch. In all events, direct exposure to strong sunlight is to be sedulously avoided. Heavily greasing the skin with petrolatum or hydrous wool fat may afford considerable protection. The wearing of goggles is important. Exposure to dust and fumes should be kept to a minimum, and as many of the processes as possible should be mechanized. Sobriety and good hygiene should be insisted on. Opportunity for frequent washing and good soap should be provided. Bathing on completion of the day's work and frequent change of work clothing are advisable. A time-worm but effective practice among European pitch mill workers is the application of a thin mud or clay mixture to the face, which is allowed to remain on during working hours and is washed off at night. Similar protection may be afforded in a more sanitary manner by various liniments and pastes. The employment of blonde and photosensitive persons or of those subject to eczema or dermatitis should be avoided wherever possible.

THERAPY

On the appearance of irritation, immediate transfer of the worker is advisable. The application of a subacetate of lead solution and zinc oxide ointment usually secures good results when the cause is removed. In the presence of follicular infection, the use of potassium permanganate compresses and of ammoniated mercury ointment or similar

44. Peck, S.: Concerning the Genesis of Pigment in the Skin and Hair of Rabbits, Arch. f. Dermat. u. Syph. **157**:234, 1929.

45. Koelsch (footnote 35, p. 340).

antiseptic measures is necessary. Keratoses and verrucous papulation should be treated by destructive measures. For the pigmentation itself little can be done; however, it is probably advisable to prevent further direct sunlight exposure and to avoid the use of potentially irritating cosmetic applications, further irritant exposures at work and the like.

CONCLUSIONS

1. Attention is directed to a group of industrial dermatoses in which melanosis is an important feature, and which heretofore has received little attention in the American literature.

2. The rôle of coal tar and petroleum derivatives possessing photodynamic activity as etiologic factors in these cases is reviewed.

3. A case is described in which a benzanthrone-anthraquinone compound and naphthalene containing only a minute trace of an impurity of unknown chemical formula are incriminated as etiologic factors by means of skin tests.

4. Biologic factors governing the development of pigmenting occupational dermatoses, together with prophylactic and therapeutic measures, are considered.

ABSTRACT OF DISCUSSION

DR. C. GUY LANE, Boston: This paper, to my mind, represents an extremely valuable contribution to industrial medicine. The author has given a clear conception of the subject of occupational melanosis, and he presents a type of work that should be encouraged in the study of industrial cases. He not only contributes a case, but discovers the cause and works it out in great detail. This is essential in such cases. The essayist discussed the biologic factor and the therapy, which is important, although these cases are commonly discovered too late to do anything in the way of prevention. Most cases are due, as Dr. Wieder said, to coal and petroleum products. He pointed out the similarity of the changes that take place to those that are produced by arsenic.

In this connection, a rather unusual case that belongs in this group came to my attention about four months ago. It is unusual in this country; so far as I could find, only two or three cases have been reported, while many have been recorded in England. I wonder whether the difference in the constitution of the coal or petroleum may not be the cause of that difference. I refer to the case of a cotton worker, of the type known as a mule-spinner. A man, aged 65, came in for treatment for a scrotal carcinoma. He had received rather intensive roentgen therapy for carcinoma when I saw him. At that time he had in addition to the ulcer an erythema from treatment, considerable scaling, pigmentation, numerous keratoses on the scrotum and a great many keratoses scattered over the forearms and hands. The condition presented the picture of the so-called "shagreen" (?) skin. The flexors, as well as the extensors, were involved. The patient gave a history of having been a mule-spinner for forty years, and during that time his trousers were practically saturated in oil during his working hours. The sun was not a factor, as Dr. Wieder pointed out. An English investigator pointed out that trauma is a factor, and stated that the friction of the rough seam of the trousers against the oily skin has been the cause of the scrotal carcinoma in these cases. The pig-

mentary change in my case was quite marked. I recall another case in which the pigmentation was not quite so marked and in which the sun was an essential causative factor. That patient was a section hand on a railway for thirty-five years, and had marked keratoses over the entire exposed areas. In addition to the sun, was the fact that he had been handling railroad ties, which possibly had been treated with some oily preparation.

DR. S. W. BECKER, Chicago: The underlying cause of this type of hyperpigmentation is always inflammation, and it seems to me that inflammations of special types are more prone to produce hyperpigmentation, especially following alpha rays that are obtained from thorium-X, which have been so well described by Peck, roentgen rays, radium rays and ultraviolet rays. The reaction is exaggerated by certain substances, including those given by Dr. Wieder. The increase in pigment seems to be due to an increase in the oxydase, for the first sign is the increase in the dopa reaction. This pigment, after it is formed in the melanoblasts that you saw in the illustrations, may be found in the more superficial cells and is cast off in the stratum corneum, or it may be carried into the dermis, where it is taken up by the phagocytic cells, which probably vary greatly in their ability to retain pigment. This results in the slate gray color which this patient had, and which we not infrequently see.

We recently saw a patient with asthenia, weakness, hyperpigmentation and a low blood pressure, who was supposed to be suffering from Addison's disease, but on examination we found that the pigment was a slate gray, limited to the upper part of the thorax, arms and forearms. The patient gave a history of having had an inflammatory dermatitis in this region a few months previously, so Addison's disease could be ruled out by the nature of the pigmentation and the history.

The nature of the melanoblasts is not yet solved. The first sign is the positive dopa reaction in the branched cells, but when first seen they are definitely attached to the epidermis, and it is difficult to say whether these cells, which differ so greatly from the palisade cells, are epidermal cells. At any rate, during the pigmentary process, these cells play a prominent rôle.

DR. SAMUEL PECK, New York: I do not believe that quinone-like bodies acting as propigments would account for the hyperpigmentation in this case, because as far as we know only dioxyphenylalnine or substances closely related can act as melanogens. Several years ago, while studying the physiology of pigment production, I attempted to produce hyperpigmentation of the human skin by the use of irritants in the absence of light (Pigmentstudien, *Schweiz. med. Wchnschr.* **59**:1227, 1929). The best results were obtained when cantharides plaster was used. The most important factors in the formation of pigment in the human skin are the individual skin, i. e., its latent power to produce pigment, which varies with the locality; the type of irritation, and the amount of radiant energy that reaches the irritated area. The human skin is capable of building pigment even in the complete absence of light. Of the three factors mentioned, the individual predisposition is perhaps the most important under the same set of conditions.

DR. PAUL GROSS, New York: This condition is more prevalent in Europe than in this country, but it is not as rare here as it would appear from Dr. Wieder's paper.

It may be mentioned that this condition should not be looked for only among industrial workers, and for that reason I wish to bring to your attention the case of a patient I saw about five years ago. A well known actor, having left the stage for years, had returned to his acting; he noticed that his tanning acquired on the seashore became more and more intensified during fall and winter. This was a typical case of melanodermatitis toxica, the name given by Erich Hoffmann. Clin-

ically, there is a low grade dermatitis underlying the pigmentation with follicular reaction, which latter is responsible for the histologic resemblance to lichen planus.

I believe that many cases of mottled pigmentation on the face, frequently attributed to the presence of lead in cosmetics, fall into the same group.

Another common occurrence is among operators of sewing machines, who present a pigmentation on the forearms and forehead, owing to contact with greasing oil.

It is gratifying to hear that Dr. Wieder has gone into the chemical phase of this disease, and it is surprising and interesting to know that he has been able to reproduce the condition experimentally.

That the condition described by Dr. Wieder has a definite connection with tar melanosis and its serious sequelae seems to me rather doubtful, and further investigation ought to illustrate the distinction between these two clinical pictures.

Dr. Karl G. Zwick, Cincinnati: Hyperpigmentation is seen following the use of certain pharmaceutic preparations. I have in mind acriflavine. Following the use of this drug, the skin becomes extremely sensitive to light. We have a wonderful opportunity after the intravenous injection of acriflavine and the other chemicals that are practically identical with it to see what will occur if we expose the patient to sunlight. Or, if the patient has been so unfortunate as to get a dose of ultraviolet light before the fluorescent chemical has been excreted, you may note the development of large bullae, which are frequently followed by hyperpigmentation. The influence of personal predisposition can be demonstrated well if you happen to be so fortunate as to have an albino (?) as a subject; if you inject acriflavine, the irritation will occur that Dr. Wieder mentioned, but there will be no pigment formation.

Dr. Lester Wieder, Milwaukee: Lack of time prevented my mentioning a number of features of the subject that appear in the text of the paper. Dr. Zwick mentioned acriflavine as an etiologic factor in the type of case described, and in addition many other things may produce the same effect. Trypaflavine has likewise been reported as producing a negroid type of pigmentation following injection of the substance, followed by exposure to strong sunlight. In regard to the chemistry of the pigmentary changes, this still must be worked out more definitely. This subject involves the problem of the chemistry of melanin formation, and it is apparent that methods of microchemical analysis are still too crude to permit of definite statements. The points I presented here are based entirely on clinical observations. The personal factors and the biologic factors influencing pigment formation, I think, should be emphasized more. What the Germans call pigment "Bereitschaft" in the subject is influenced by many factors. Perspiration has been shown by Zurhelle to have an influence on pigment production, and Ullmann stated that alcohol also exerts a definite influence.

Dr. Clark W. Finnerud, Chicago: I wish to mention an interesting case of pigmentation of Dr. Ormsby's, the patient being a worker in the Western Electric factories. He had been working for several weeks on a newly compounded substance known as permollay dust when the discoloration was first noticed. There developed a heavy pigmentation of the neck, forehead, arms and hands. The case was rather important from the insurance, as well as the cosmetic, standpoint. The formula submitted showed no arsenic but largely chromium and nickel salts. At no time was any gross evidence of dermatitis present in the areas. The discoloration had been present for several months when the patient was first seen. After a long-continued use of sodium thiosulphate, locally as well as intravenously, the condition cleared up entirely.

SUPERFICIAL GLOSSITIS AND PERLÈCHE DUE TO MONILIA ALBICANS

THEIR ASSOCIATION WITH OTHER FORMS OF MONILIASIS *

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AND
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NEW YORK

The fact that the well characterized lesion known as erosio interdigitalis is caused by infection with yeastlike organisms was shown by the work of Kaufmann-Wolf,[1] Fabry,[2] Greenbaum and Klauder [3] and other investigators. The same or similar organisms have been shown by Kumer,[4] Shelmire,[5] Kingery and Thienes [6] and others to be the cause of chronic paronychia, of intertrigos and of other cutaneous lesions.

In 1929, Finnerud [7] reported the study of an epidemic of perlèche in a home for children, in which he was able to cultivate yeastlike organisms in 82 of 100 cases. Of forty-two of the strains isolated by Finnerud and studied by Pribram,[8] sixteen were identified as mycodermas, eighteen as monilias (or candidas) and eight as cryptococci. On experimental inoculation of the corners of normal mouths with the organisms recovered from these cases, Finnerud reproduced the lesion in 9 of 10 cases. Five of these experimental cases were persistent in character. The successful inoculations were made with monilias five times and

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1. Kaufmann-Wolf: Dermat. Ztschr. **22**:441, 1915.

2. Fabry, J.: München. med. Wchnschr. **44**:1557, 1917.

3. Greenbaum, S. S., and Klauder, J. V.: Yeast Infections of the Skin, Arch. Dermat. & Syph. **5**:332 (March) 1922.

4. Kumer, L.: Mitt. a. d. Grenzgb. d. Med. u. Chir. **33**:160, 1921.

5. Shelmire, B.: Thrush Infections of the Skin, Arch. Dermat. & Syph. **12**:789 (Dec.) 1925.

6. Kingery, L. B., and Thienes, C. H.: Mycotic Paronychia and Dermatitis; A Hitherto Undescribed Condition Apparently Peculiar to Fruit Canners, Arch. Dermat. & Syph. **11**:186 (Feb.) 1925.

7. Finnerud, C. W.: Perlèche; Clinical and Etiologic Study of One Hundred Cases, Arch. Dermat. & Syph. **20**:454 (Oct.) 1929.

8. Pribram, E.: Fungi of Genera Mycoderma (Desmozières) Viullemin, Candida Berkhout and Cryptococcus Kuetzing Isolated from the Skin During an Epidemic of Perlèche, J. Infect. Dis. **47**:1, 1930.

with cryptococci four times. Skolnik [9] reported 5 cases of perlèche in adults from which he recovered yeastlike organisms which he considered cryptococci.

PERLÈCHE

Since our attention was drawn by Finnerud's report to the occurrence of Monilia in perlèche of children, we have made a study of

Fig. 1 (case 11).—Perlèche.

Fig. 2 (case 11).—Erosio interdigitalis.

perlèche in adults and have been impressed by its frequent association with other forms of moniliasis of the skin.

The morphologic similarity between the perlèche lesion and the interdigital erosion is striking. We have not been able to observe the early

9. Skolnik, E. A.: Perlèche of Adults; Report of Five Cases Apparently of Mycotic Origin, Arch. Dermat. & Syph. **22**:642 (Oct.) 1930.

stages, but when well developed it presents a central fissure or group of fissures surrounded by flakes of a slowly desquamating horny layer. These are sometimes white and macerated, more often stiffened by dried serum. They soon become free at the edges, but remain for a long time firmly adherent at their centers. As in the interdigital erosion, there is strikingly little erythema surrounding the lesion and no detectable infiltration. The patients presenting the perlèche lesion are frequently Jewish housewives of middle age, and they often show interdigital erosions and mycotic paronychias.

Fig. 3 (case 5).—Perlèche and superficial glossitis.

SUPERFICIAL GLOSSITIS

The examination of the mouths of these patients with perlèche showed that a number had a distinct lesion of the tongue. The lesion when of recent origin gave some discomfort, such as burning or soreness, mostly when food was taken. The more chronic cases were apparently free from any symptoms.

In the chronic cases similar to those seen in the photographs (figs. 3 and 4), the surface of the tongue was most striking. There appeared to be a complete loss of the papillae. The tongue presented a smooth, slippery appearance, similar to a piece of red rubber recently moistened. In less advanced cases there were plaques of this description mostly on the anterior half of the tongue. In one case of a very acute Monilia infection involving the hands, feet and angles of the mouth and the tongue, the anterior half of the tongue was bright red. The papillae

appeared to be edematous and already eroded on the surface. This lesion we assume to represent an early involvement.

Tongues of similar type have recently been observed, not associated with perlèche. From several such cases, Monilia albicans has been recovered on culture.

These smooth atrophic lesions bear no resemblance to the familiar thrush patches due to Monilia albicans. Other forms of glossitis have been described as caused by what was probably the same organism. Zeisler,[10] in 1927, described a remarkable case with white scroll-like patterns on the tongue's surface. Frost and others [11] in 1929, reported an instance in which the tongue was deeply fissured and covered with

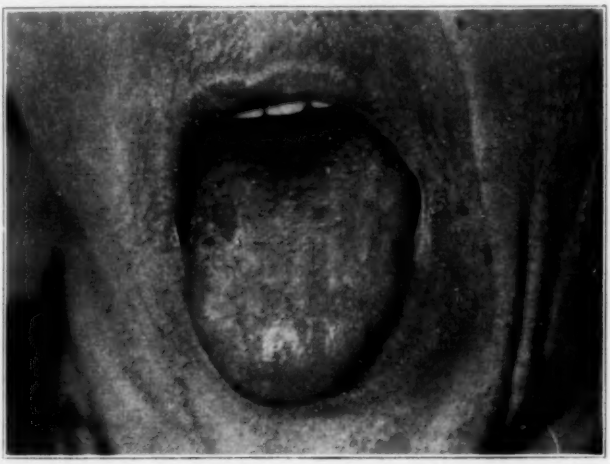

Fig. 4.—Superficial glossitis. Monilia albicans was isolated from the lesion. No perlèche or other form of moniliasis was present.

a gelatinous membrane. No satisfactory explanation of the varied forms this infection may assume can be offered on the basis of our present knowledge.

MYCOLOGIC OBSERVATIONS

Scrapings from the lesions were studied in sodium hydroxide slide preparations, and cultures were made on Sabouraud's honey agar. These were purified by fishing isolated colonies. The organisms so obtained were transferred to Sabouraud's honey agar, to cornmeal agar and to gelatin.

For study of organisms that reproduce by budding, a most useful method is the inoculation of a cornmeal agar plate by making a long cut through the thickness

10. Zeisler, E. P.: Monilia Infection of the Tongue, Arch. Dermat. & Syph. **15**:171 (Feb.) 1927.

11. Frost, K. P.; Sutherland-Campbell, H., and Plunkett, O. A.: Monilia of the Tongue, Arch. Dermat. & Syph. **20**:811 (Dec.) 1929.

of the medium with a sharp needle. In such a preparation, both the surface growth and the growth in the depth of the agar can be directly observed under low power magnification. By covering a portion of the growth with a cover slip, a recommended by Dalmau,[12] the surface portions can be studied with a high dry or oil immersion lens. The use of plates has the advantage of making such direct studies possible. The employment of cornmeal agar has the advantage that in any subsurface culture in this medium many strains which in sugar broth or agar develop for a long time only budding cells, promptly thrust out mycelial threads through the agar and soon develop characteristic chlamydospores. Moreover, perfect species such as S. cerevesiae or E. fibuliger have been found to develop ascospores regularly in such cultures. The absence of ascospores in the cultures here reported is therefore of some significance.

Direct examination of scrapings from the interdigital lesions frequently revealed the presence of yeastlike organisms. In some specimens they appeared as clusters of budding cells. Other specimens showed a delicate threadlike mycelium, with few septums and with oval spores attached obliquely to the sides. Small buds sometimes projected from the ends of these oval spores. The differences in appearance of the organisms in direct slide preparations could not be correlated with the differences in cultural types to be described. In fact, one could not be certain in cases in which a cryptococcus was obtained on culture that this was the same organism that had been observed in the direct slide.

Similar organisms were found in scrapings from the eroded nail or from skin scales at the base of the nail in cases of paronychia. Mycelium was rarely observed in the nail specimens. Scrapings from the tongue were usually negative and those from perlèche lesions invariably negative on direct examination.

CLASSIFICATION OF STRAINS

A study of yeastlike organisms recovered from human skin lesions has recently been reported by Rhoda W. Benham [13] from this laboratory. A detailed description of their morphology would exceed the scope of this report.

The morphologic characteristics described by Benham as of greatest help in differentiation of the species here encountered are the following: Two distinct types of mycelial growth may be recognized. In some species cells composing the mycelium are firmly joined at their ends so as to form well developed filaments. In other species, mycelial cells are loosely joined at rounded ends, and the filaments are easily broken up in making slide preparations. All of the fungi here mentioned show budding forms, but in some the budding cells are round

12. Dalmau, L. M.: Ann. Parasitol. **7**:536, 1929.

13. Benham, R. W.: Certain Monilias Parasitic on Man; Their Identification by Morphology and by Agglutination, J. Infect. Dis. **49**:183 (Sept.) 1931.

or oval; in others they are much elongated. In one species, Monilia albicans, characteristic spherical clusters of spores are formed and also terminal chlamydospores which are distinctive.

The appearance of the giant colonies is of some aid in recognition of species, but the distinctions are difficult to define. Striking differences, however, are that in some species the colony is pasty; in others

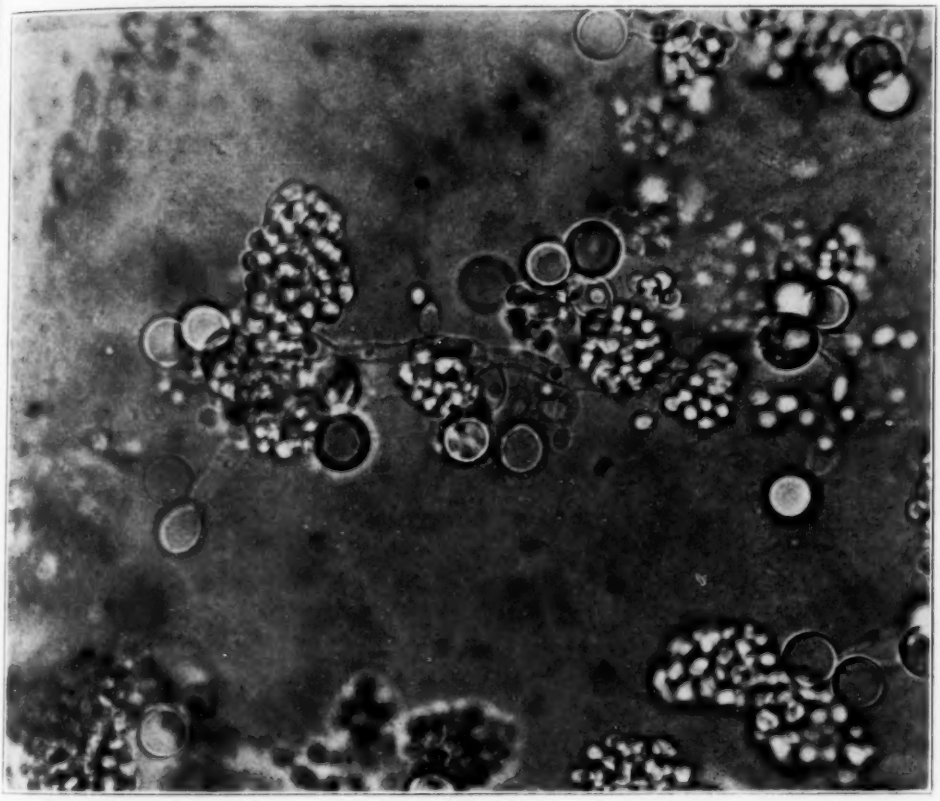

Fig. 5 (case 11).—Monilia albicans isolated from interdigital erosion. Culture on corn meal agar, showing typical mycelium, spore clusters and chlamydospores.

it becomes dry. In some it is easily broken up with a needle. In others it is tough and membranous.

The appearance of the growth in gelatin stab cultures has been carefully described by Ashford and is also of value in differentiating the types obtained. None of the strains studied liquefy gelatin. The true yeasts and the cryptococci throw out no lateral filaments, but grow along the inoculated stab in an even or somewhat beaded line (filiform). Monilia albicans usually develops the appearance that Ashford describes as an inverted pine tree. Horizontal filaments are thrust out in all

directions from the line of inoculation. These are longer near the surface and become gradually shorter deeper in the medium. Monilia parapsilosis develops a brushlike appearance which Ashford compares

TABLE 1.—*Cases of Perlèche Showing Associated Lesions and Yeastlike Organisms Obtained on Culture from Involved or Normal Areas*

Diagnosis	Lips	Mouth	Finger-Web	Finger-Nail or Paronychium	Toes
1. Perlèche, otitis externa, erosio interdigitalis, paronychia, dermatitis of toes	M. albicans	M. albicans	M. albicans	M. albicans	Negative
2. Perlèche, glossitis, paronychia, dermatitis of toes	Negative	M. albicans	.....	Negative	Negative
3. Perlèche, glossitis, paronychia...	M. candida?	M. candida?	.....	Negative	
4. Perlèche, glossitis	M. albicans	M. albicans			
5. Perlèche, glossitis	M. candida?	M. candida?			
6. Perlèche, glossitis	Negative	M. albicans, cryptococcus			
7. Perlèche, erosio interdigitalis, paronychia	M. albicans	M. albicans	M. albicans, M. parapsilosis	M. albicans	Cryptococcus
8. Perlèche, erosio interdigitalis, paronychia	M. albicans	Negative	M. albicans	M. albicans	
9. Perlèche, erosio interdigitalis, paronychia	M. albicans	Negative	Negative	Negative	
10. Perlèche, erosio interdigitalis, paronychia	Negative	Negative	M. parapsilosis	M. albicans and unidentified Monilia	Negative
11. Perlèche, erosio interdigitalis....	M. albicans	Negative	M. albicans	Negative	Negative
12. Perlèche, erosio interdigitalis....	M. albicans	M. albicans	Negative	Cryptococcus (pink)	
13. Perlèche, erosio interdigitalis....	M. krusei	Cryptococcus (buff)	M. albicans		
14. Perlèche, paronychia	Negative	M. albicans	.....	Negative	Negative
15. Perlèche, dermatitis of toes.....	M. albicans	M. albicans	.....	.....	M. albicans
16. Perlèche, dermatitis of toes.....	Negative	.....	.....	.....	Negative
17. Perlèche	M. albicans	M. albicans	.....	.....	Yeast (unidentified)
18. Perlèche	M. albicans	Negative			
19. Perlèche	M. albicans	M. albicans			
20. Perlèche, glossitis	M. albicans	M. albicans			
21. Perlèche	M. albicans and unidentified Monilia				
22. Perlèche	Negative				

to a fir tree. The lateral branches are shorter, coarser and often of approximately equal length from top to bottom. Monilia krusei presents a somewhat similar appearance, though the side branches are usually still shorter.

As distinguished by these simple features, five species were recognized among the cultures obtained:

1. Monilia albicans: The mycelial cells are firmly joined, and spore clusters and chlamydospores are present. The colony is pasty and easily broken up. It usually develops the pine tree form in gelatin.

2. Monilia candida: The mycelial cells are firmly joined, but no spore clusters and few chlamydospores are formed. The colony is membranous. Growth in gelatin forms an atypical pine tree.

3. Monilia parapsilosis: The mycelial cells are loosely joined; budding forms are round or oval. The colony is pasty and easily broken up. The growth in gelatin is brushlike.

4. Monilia krusei: The mycelial cells are loosely joined. The budding forms are elongated. The older colonies are dry, but easily broken up. There is a faintly brushlike growth in gelatin.

5. Cryptococcus: No mycelium is developed. The budding cells are round or oval. The colonies are pasty and easily broken up. The growth in gelatin is filiform or beaded. The cultures here grouped as cryptococci were doubtless of different species. In four strains the colonies were buff, and there was great variation in their surface make-up. One developed a bright pink pigment.

As a further test of identity the cultures obtained were agglutinated in four serums obtained by immunizing rabbits to Monilia albicans, Monilia parapsilosis, Monilia krusei and Saccharomyces cerevesiae, respectively. The classification made on morphologic grounds was in general confirmed by these agglutinations. This method of identification proved most helpful, but can be relied on only in conjunction with morphologic study. Two strains which morphologically resembled M. albicans were agglutinated in this serum in no higher titer than in some of the other serums. Moreover Monilia candida agglutinated well in Monilia albicans serum. Whether the strains here classified as Monilia candida represent one species or a group of closely allied species cannot at present be stated with certainty.

Significance of Mycologic Findings—Monilia albicans was recovered from the majority of the perlèche lesions and also from most of the complicating lesions when present. On the other hand, it was not recovered from normal skin areas in the same persons, although it was present in the mouths of 7 of 13 patients with perlèche who showed no oral lesions. The interdigital erosion and perlèche have been experimentally produced by inoculation with what was apparently the same organism by other investigators, and there seems little doubt as to its causal relationship to the lesions.

As to the other yeastlike organisms recovered, there is a more serious question. It will be seen in table 2 that the closely related organism, Monilia candida, was recovered from two cases of perlèche both from the lip lesions and from the mouth. Monilia krusei was recovered once from a case of perlèche, and monilia parapsilosis was obtained from two interdigital erosions, once in association with Trichophyton gypseum [14] and once associated with Monilia albicans. These organisms are not virulent when injected into rabbits, and their pathogenicity for man has never been proved. The significance of finding them in these lesions is doubtful. Cryptococci were obtained once from a glossitis in mixed culture with Monilia albicans. They were also recovered from the mouth of one patient, from the paronychia of another and from the toe-nail of a third who showed no lesions in these locations. It seems

TABLE 2.—*Number of Strains Isolated from Various Mycotic Lesions in Patients with Perlèche (Summarized from Table 1)*

	Perlèche	Superficial Glossitis	Erosio Interdigitalis	Paronychia	Dermatitis of Toes	Otitis Externa
Number of cases	22	6	8	8	4	1
M. albicans	13	4	5	4	1	..
M. candida	2	2	..	..	..	..
M. krusei	1	..	..	..	..	..
M. parapsilosis	..	..	2†	..	..	..
Unidentified Monilia	1*	..	..	1*	..	..
Cryptococcus	..	1*	..	..	..	1
No yeastlike organisms obtained	6	..	2	4	3	..

* Obtained in mixed culture with M. albicans.
† Obtained once in mixed culture with M. albicans.

probable that they were saprophytes. The occurrence of a dermatitis of the ear canal in one of these patients was of interest, as its association made it seem probable that it was due to the same organism that caused the perlèche. The fact, however, that we could not recover Monilia albicans from this leaves its mycotic nature uncertain.

These findings emphasize the importance of the careful identification of yeastlike organisms recovered from lesions. It is only by more extensive observations as to what species occur in diseased and in normal skin that a clear understanding of their pathogenic powers can be hoped for.

SUMMARY

1. This report comprises a series of 22 cases of perlèche in adults, which were complicated by superficial glossitis in 6 cases, by erosio

14. In one case of interdigital erosion a Trichophyton gypseum was obtained in mixed culture with Monilia parapsilosis. The occurrence of a Trichophyton is so rare in these lesions that one is inclined to believe its presence to have been accidental.

TABLE 3.—*Characteristics of Cultures from Perlèche and Associated Lesions*

Case*	Source	Identified by Morphology as	Growth in Gelatine	Agglutination Serums of Rabbits Injected with: M. albicans, Titer 1–500	M. parapsilosis, Titer 1–1,000	M. krusei, Titer 1–500	Saccharomyces cerevisiae, Titer 1–500
1	(a) Lips	M. albicans	"Pine tree"	1–250	1–50	1–20	1–20
	(b) Mouth	M. albicans	"Pine tree"	1–250	0	1–20	1–50
	(c) Finger-web	M. albicans	"Pine tree"	1–250	0	1–20	1–50
	(d) Paronychium	M. albicans	"Pine tree"	1–250	1–50	1–20	1–50
	(e) Ear canal	Cryptococcus (buff)	Filiform	1–100	1–20	1–50	1–20
2	Tongue	M. albicans	"Pine tree"	1–500	1–100	1–50	1–20
3	(a) Lips	M. candida ?	Atypical "pine tree"	Spontaneously agglutinated			
	(b) Tongue	M. candida ?	Atypical "pine tree"	1–500	0	0	0
4	(a) Lips	M. albicans	"Pine tree"	1–500	0	1–20	1–50
	(b) Mouth	M. albicans	"Pine tree"	1–250	0	1–50	1–50
5	(a) Lips	M. candida ?	Brushlike	1–500	0	1–50	1–50
	(b) Tongue	M. candida ?	Atypical "pine tree"	1–500	0	1–50	1–50
6	(a) Tongue	M. albicans	"Pine tree"	1–500	1–100	1–250	1–50
	(b) Tongue	Cryptococcus (buff)	Filiform	0	1–50	1–20	1–50
7	(a) Lips	M. albicans	Atypical "pine tree"	1–250	1–10	1–50	1–20
	(b) Mouth	M. albicans	"Pine tree"	1–250	1–10	1–20	1–20
	(c) Finger-web	M. albicans	"Pine tree"	1–250	1–20	1–20	1–50
	(d) Finger-web	M. parapsilosis	Brushlike	1–50	1–500	1–20	1–50
	(e) Paronychium	M. albicans	"Pine tree"	1–500	1–20	1–20	1–20
	(f) Toe-nail	Cryptococcus (buff)	Filiform	1–100	1–50	1–20	1–100
8	(a) Lips	M. albicans	"Pine tree"	1–500	1–50	1–50	1–100
	(b) Finger-web	M. albicans	"Pine tree"	1–250	1–50	1–20	1–50
	(c) Paronychium	M. albicans	"Pine tree"	1–250	1–50	1–20	1–100
9	Lips	M. albicans	"Pine tree"	1–500	0	1–20	1–20
10	(a) Finger-web	M. parapsilosis	Brushlike	1–50	1–250	1–50	1–50
	(b) Paronychium	M. albicans	"Pine tree"	1–200	0	1–20	0
	(c) Paronychium	M. unidentified	Atypical "pine tree"	Spontaneously agglutinated			
11	(a) Lips	M. albicans	"Pine tree"	1–500	1–20	1–20	1–50
	(b) Finger-web	M. albicans	"Pine tree"	1–500	1–50	1–20	1–50
12	(a) Tongue	M. albicans	"Pine tree"	1–500	1–50	1–20	1–50
	(b) Lips	M. albicans	"Pine tree"	1–500	1–50	1–50	1–50
	(c) Paronychium	Cryptococcus (pink)	Filiform	0	0	0	0
13	(a) Lips	M. krusei	Brushlike	0	1–50	1–500	1–20
	(b) Mouth	Cryptococcus (buff)	Filiform	0	0	0	0
	(c) Finger-web	M. albicans	"Pine tree"	1–200	0	1–20	1–50
14	Mouth	M. albicans	"Pine tree"	1–500	1–50	1–50	1–20
15	(a) Lips	M. albicans	"Pine tree"	1–500	0	1–50	1–50
	(b) Tongue	M. albicans	"Pine tree"	1–500	0	1–50	1–50
	(c) Tongue	M. albicans	"Pine tree"	1–500	0	1–50	1–50
	(d) Toe	M. albicans	"Pine tree"	1–500	0	1–50	1–50
17	(a) Lips	M. albicans	"Pine tree"	1–500	1–50	1–50	1–50
	(b) Mouth	M. albicans	"Pine tree"	1–500	1–20	1–20	1–20
18	Lips	M. albicans	"Pine tree"	1–200	1–200	1–50	1–100
19	(a) Lips	M. albicans	"Pine tree"	1–500	1–50	1–20	1–50
	(b) Tongue	M. albicans	"Pine tree"	1–250	1–50	1–10	1–50
20	(a) Lips	M. albicans	Atypical "pine tree"	1–250	1–100	1–20	1–50
	(b) Mouth	M. albicans	"Pine tree"	1–250	1–100	1–50	1–100
21	(a) Lips	M. albicans	Filiform	1–500	1–50	1–50	1–50
	(b) Lips	M. unidentified	Atypical "pine tree"	1–50	0	0	0

* No fungi were obtained on culture from cases 16 and 22.

interdigitalis in 8 cases, by paronychia in 8 cases and by dermatitis of the toes in 4 cases.

2. A superficial glossitis from which Monilia albicans can be isolated occurs sometimes in association with perlèche and sometimes independently.

3. Monilia albicans was recovered from perlèche lesions in 13 cases and from a number of the complicating mycotic lesions.

4. It is doubtful whether the other species of yeastlike organisms obtained were the cause of the lesion from which they were isolated.

DERMATOSES ASSOCIATED WITH NEURO-CIRCULATORY INSTABILITY

GENERALIZED AND LOCALIZED PRURITUS, NEURODERMATITIS, DYSHIDROSIS, URTICARIA AND ANGIONEUROTIC EDEMA, LICHEN PLANUS, NEUROTIC EXCORIATIONS, ALOPECIA AREATA, DERMATITIS HERPETIFORMIS AND SCLERODERMA *

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In the scientific exhibit at the Portland session of the American Medical Association in 1929 attention was called by Becker and Koehler to certain dermatoses accompanied by signs and symptoms that were regarded as evidence of a deficiency of energy. This study has been continued, and it is the purpose to present in this paper impressions that are the result of observation of 204 unselected patients. These patients fall into the so-called "functional" group, a heterogeneous group concerning which there is considerable disagreement. The outstanding feature of the group is the absence of evidence of organic pathologic lesions to account for the signs and symptoms. Various terms have been employed to designate these patients, depending on the predominant features of their condition.

Children with this condition are designated by the French as neuro-arthritic. Comby [1] designated arthritism as vasotrophic neurosis, with vasomotor manifestations appearing during the first half of life and trophic manifestations during the latter half. He emphasized the supreme importance of heredity in the group. The condition is found in the middle and upper classes and not in the laboring classes. He quoted Bouchard as having noted the condition especially in the Jewish race. The children are well nourished, and often have asthma, pruritic papules, eczema, urticaria and angioneurotic edema. They are active, nervous, crying, intolerable. They suffer from insomnia, nocturnal fright, profuse sweating and intolerance to cold. They have fits of passion, spasm of the glottis, croup, muscular spasms and often convul-

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1. Comby, J., in Grancher, J.; Comby, J., and Marfan, A. B.: Traité des maladies de l'enfance, Paris, Masson & Cie, 1897.

sions. They have migraine. In this group of children are found symptoms often attributed to growing or to mental overactivity, namely, osseous or articular symptoms, weakness in the limbs, obstinate headache, apathy, discouragement, symptoms of neurasthenia and difficulty in mental and physical application.

Eppinger and Hess [2] introduced the classification of vagotonia and sympathicotonia, assuming in each instance hyperaction of the system concerned. They considered vagotonia to be the expression of an inferior constitutional make-up, emphasizing a frequent coincidence with states undoubtedly due to constitutional inferiority of the organism. According to Chiray and Pavel,[3] vagotonia is the more frequent of the two. They present Guillaume's symptomatic tabulation of vagotonia as follows:

Gastro-intestinal: Sensation of thoracic or epigastric globus; nausea with frequent vomiting; constipation due to spastic colitis; roentgen evidence of a small, contractile, hypertonic stomach, generally with rapid evacuation.

Cardiovascular: Cardiovascular instability, with tendency to reflex arrhythmia, frequent bradycardia and poor peripheral circulation with venous stasis; blood pressure generally low, especially the diastolic.

Respiratory: Slow respiration, often irregular, with respiratory cardiac irregularity; sensation of oppression, of embarrassment and of thoracic constriction: frequent nocturnal attacks of suffocation, with predominance of expiratory embarrassment.

Cutaneous signs: Dermographism, either a white line between two red ones or, more frequently, an intense and persistent red line. Dermographism is due to the state of circulatory instability and arterial incapacity for rapid adaptation. The skin is generally cold, moist and pale blue, with venous marmoration.

Other features: Salivation is usually abundant, urination is frequent, and the urine is abundant. Eosinophilia is frequent. Vagotonic persons often tend to become fat. They are generally quiet, melancholic, anxious and preoccupied with their condition, the importance of which they exaggerate. They are "ambulatory invalids."

The sympathicotonic patient presents the opposite picture, with a tendency to exophthalmos, dryness of the mouth, frequency of "goose flesh" and dryness and firmness of the skin. There is a tendency toward tachycardia and hypertension, diarrheal attacks, precordial anginal pain and polyuria. The aptitude for work and exercise is remarkable, often even exaggerated, resulting in unnecessary expenditure of energy. Tremor and insomnia are frequent. They are often hearty eaters, but do not gain weight. They have strong characters.

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2. Eppinger, H., and Hess, L.: Zur Pathologie des vegetativen Nervensystems, Ztschr. f. klin. Med. **68**:205, 1909.

3. Chiray, M., and Pavel, J.: Syndromes neuro-végétatifs, in Roger, J. H.: Widal, F., and Teissier, P. J.: Nouveau traité de médicine, Paris, Masson & Cie. 1927, p. 405.

The sympathicotonic symptoms appear in outbreaks, in contrast to vagotonic symptoms, which are more or less permanent with exacerbations. In sympathicotonia, the eyes protrude, shine, sparkle; the pupils are dilated. The patient weeps, is agitated, gesticulates and gets into a passion, with irregular movements. The limbs are agitated and trembling. Goose flesh appears. Respiration is rapid, the pulse is rapid and regular, the blood pressure is elevated, especially the diastolic pressure. The mouth is dry, and polyuria is the rule. Alimentary glycosuria is habitual. Stools are frequent, abundant, soft and at times diarrheal. The attack of sympathicotonia lasts for from a few minutes to two or three hours.

In addition to clinical signs, the actions of various drugs have been presented in support of the diagnosis of vagotonia and sympathicotonia. Subcutaneous injection of 1 mg. of epinephrine hydrochloride produces in a sympathicotonic patient marked accentuation of the normal reaction, with an increase in the pulse rate of as much as one-third, an increase in blood pressure and an increase in the amount of urine to double the normal amount, with excretion of more than 5 Gm. of sugar. One quarter of a milligram of physostigmine hydrobromide produces slowing of the heart and intestinal contractions in a vagotonic patient. The administration of this drug is said to be somewhat dangerous. Pilocarpine in dosage of 1 centigram injected subcutaneously produces in vagotonic persons marked salivation, hypersecretion of digestive juice, with vomiting, accentuation of peristalsis, with diarrhea and tenesmus, slowing of the heart, miosis and an increase in the number of eosinophils. Atropine sulphate in a dose of 1 mg. injected subcutaneously tends to paralyze the craniosacral sympathetic system, causing the disappearance of bradycardia and ameliorating the respiratory and digestive symptoms. By patients with sympathicotonia, the drug is badly borne. It produces dilatation of the pupils, with visual troubles and even photophobia, acceleration of the pulse, arrest or diminution of secretions, dryness of the mouth and difficulty in swallowing. These symptoms may last several days.

Physiologic tests have been employed, namely, the oculocardiac and nasocardiac reflexes, in which the pulse of the vagotonic patient is slowed.

In discussing the functional neurovegetative syndromes, Chiray and Pavel divided them into:

1. Cardiovascular: The cardiac difficulties may be bradycardia or tachycardia, or instability. The arterial difficulties include the following: Raynaud's disease, erythromelalgia, dermographism, angioneurotic edema, chronic trophedema, acrocyanosis, with palmar and plantar hyperhidrosis, and angina pectoris.

2. Respiratory: This includes asthma and respiratory irregularities, with a feeling of difficulty in aerating the lungs.

3. Digestive: This syndrome embraces salivation and gastric and intestinal difficulties, especially colitis.

4. Abdominal-glandular: This includes hepatic and renal colic and polyuria.

5. Nervous: Included in this are migraine, epilepsy, hysteria, mental states of anxiety or excitation and seasickness.

Guillaume [4] described a combination of signs of vagotonia and sympathicotonia with marked instability as "neurotonia intriquée." His "neurotonie alternante" consists of alternating periods of vagotonia and sympathicotonia. His "hypotonie totale" signifies depression of vital power, a more or less intense state of shock appearing in attacks.

Petersen and Levinson [5] discussed autonomic equilibrium on the basis of detailed studies of patients.

According to Singer,[6] the term "neurasthenia," also called nervous exhaustion or fatigability, was first used by Beard in 1869 to designate a group of disorders, the common characteristics of which were manifestations suggestive of exhaustion, with no demonstrable organic basis. The condition is slightly more common in women and appears during years of greatest stress and more often in those who work with their brains. The condition has a hereditary background. Emotional stress plays a large part in the production of the symptoms. The symptoms are those of apparent mental fatigue and exhaustion, headache or an uncomfortable feeling in the head, retinal hyperesthesia, increased sensitiveness to sound, paresthesias, numbness and tingling and rapid fatigability of the muscles. It is evident, however, that it is not real fatigue of the muscles, but fatigue in the performance of certain functions. The tendon reflexes are increased. The desire for food is lessened or lost, the gastric findings are those of hyperacidity or hypo-acidity, with frequent change. The cardiac rate is easily altered; the blood pressure is low or high, but often normal; the respirations are irregular; sexual desire is frequently diminished. The patients concentrate on their symptoms.

The term "psychasthenia" was first used by Janet in 1898 to designate patients unable to make decisions, with obsessions, tics and impulses, along with many of the symptoms described under neurasthenia.

Bolten [7] considered that many patients in the functional group have an inborn sympathetic insufficiency. Bergmann [8] classified them as

4. Guillaume, quoted by Chiray and Pavel (footnote 3); quoted by Petersen and Levinson (footnote 5).

5. Petersen, W. F., and Levinson, S. A.: The Skin Reactions, Blood Chemistry and Physical Status of Normal Men and of Clinical Patients, Arch. Path. **9**:151 (Jan.) 1930. This is an excellent and comprehensive study.

6. Singer, H. D.: Neurasthenia, in Tice, Frederick: Practice of Medicine, Hagerstown, Md., W. F. Prior Company, 1928, vol. 10, p. 269.

7. Bolten, quoted by Barber, H. W., and Oriel, G. H.: Clinical and Biological Study of Allergy, Lancet **2**:1009 (Nov. 17) and 1064 (Nov. 24) 1928.

8. Bergmann, quoted by Petersen and Levinson (footnote 5).

vegetatively stigmatized. During the World War, the terms "irritable heart," "cardiovascular asthenia" and "soldier's heart" were used to designate functional heart disease encountered among soldiers. Other terms that have been used for the functional nervous diseases are "autonomic imbalance," "neurocirculatory asthenia or instability," "nervous instability," "nervous imbalance," "vasomotor instability," "nervous irritability," "visceromotor nervous hypersensitiveness" and "visceromotor instability."

After a study of the patients concerned here and a review of the various views and designations applied to patients with functional nervous disorders, the designation seeming to be the most appropriate and all inclusive is "neurocirculatory instability," which will be used throughout this paper. It includes all the aforementioned symptoms, whether vagotonic, sympathicotonic or otherwise. My associates and I have found the cardinal symptoms of all the various classifications, as just given, in our patients, generally in combinations that practically defy analysis, and we consider the aforementioned term most suitable of all.

It is seen from the foregoing discussion that cutaneous disorders are given little consideration in classifications of functional nervous diseases. As one peruses textbooks on dermatology, one finds repeated reference to the nervous origin of certain dermatoses. It is patients with these dermatoses who have been studied with reference to their nervous background. The following are the conditions in question:

Generalized pruritus
Localized pruritus (ani et vulvae)
Neurodermatitis
Dyshidrosis
Urticaria
Angioneurotic edema
Neurotic excoriations
Alopecia areata
Lichen planus, dermatitis herpetiformis and scleroderma (some cases)

One occasionally finds other conditions in the realm of greater dermatology, such as shortening of the finger-nails from biting. One of our patients had bitten the nails practically to the nail-fold. Cases of trichotillomania and trichorrhexomania likely fall into this general group.

More than one dermatosis may be seen in the same person, and the dermatosis may be accompanied by other signs and symptoms in the realm of internal medicine. Some of the most common are:

Extreme fatigue
Symptoms of neurasthenia and psychasthenia
Nervous irritability or depression
Hyperkinesia

Functional gastro-intestinal disturbances, especially functional colitis
Headache and backache
Vasomotor rhinitis (hay-fever)
Asthma

DERMATOSES

When the list of dermatoses is scanned, they are recognized as having been attributed at one time or another to nervous disturbances. My associates and I have taken cognizance of the various other causes for generalized pruritus, have recognized that pruritus ani and vulvae are due to organic disease in certain instances, and have eliminated organic factors as causative. Some of the patients with generalized pruritus showed a tendency toward dermographism or toward urticaria, or toward both. Neurodermatitis has been designated by the French as a stigma of a certain type of nervous system. Jadassohn,[9] on the other hand, stated that although he had seen the condition in nervous persons, especially women, he had also seen it in stolid peasants. Hazen[10] stated that neurodermatitis is in some instances truly allergic. Wise and Ramirez[11] expressed the same opinion, and considered the possibility of future classification into allergic and nonallergic types. Dyshidrosis has been attributed to a nervous origin, to a disturbance of the secretion of sweat (Tilbury Fox[12]) and to infection by a fungus, either locally or at a distant point, producing trichophytid. During extremely hot weather we see a number of patients whose palms are studded with superficial vesicles, concomitant with a flare-up of dermatomycosis of the soles. This condition recedes quickly under local therapy, and does not recur until the next hot spell. We diagnose this eruption as trichophytid, and it does not resemble closely typical dyshidrosis. It is interesting to note that when dyshidrosis was first described by Tilbury Fox in 1873, although he attributed the eruption to retention of sweat, probably erroneously, he did recognize the peculiarities of the individual patient. Among other things, he stated: "Some have been prostrated by mental anxiety or worry. They always 'perspire too freely,' are speedily exhausted, and often dyspeptic."

Urticaria is now generally thought to be due to sensitization. Certain cases are of this type, and it is in the urticarial group that one meets the allergist. A few of our cases of urticaria were apparently caused by sensitization; one followed injection of a serum, and one or

9. Jadassohn, J., quoted by Alexander, A.: Neurodermatitis, in Jadassohn, J.: Handbuch der Haut- und Geschlechtskrankheiten, Berlin, Julius Springer, 1927, vol. 6, pt. 1, p. 426.

10. Hazen, H. H.: Allergic Dermatoses, Arch. Dermat. & Syph. **18**:121 (July) 1928.

11. Wise, F., and Ramirez, M. A.: Protein Sensitization in Pruritus with Lichenification, Arch. Dermat. & Syph. **11**:751 (June) 1925.

12. Fox, Tilbury: On Dysidrosis, Am. J. Syph. & Dermat. **4**:1 (Jan.) 1873.

two followed ingestion of certain foods. A majority, however, presented signs or symptoms of neurocirculatory instability. Török [13] minimized the neurogenic factor in urticaria, and attempted to explain the reported cases on the basis of sensitization. It is likely that the neurogenic type of urticaria is less frequent in Europe than in this country, owing to the more quiet existence. Angioneurotic edema is subject to the same statements, but here the nervous element is prominent to a greater degree than it is with urticaria. In the discussion of Drysdale's case [14] of acute circumscribed edema, emphasis was placed on the constitutional predisposition to angioneurotic edema.

Neurotic excoriations have been found by my associates and me only in patients falling into our group. Pusey [15] recently called attention to the association of alopecia areata and sudden shock. From our study we can state with a fair degree of certainty that the proper instability is present as a prerequisite to any of these dermatoses. We also believe that the experimental work reported by Wright [16] and others on man and animals did not produce alopecia areata, because the prerequisite factors were not present. Typical full-blown cases of lichen planus belong in this group, in our experience. Certain bizarre cases, as for instance lichen ruber verrucosus, do not fit in. A majority of our cases of dermatitis herpetiformis and some types of scleroderma are also to be included. Two of our patients, one with lichen planus and one with neurodermatitis, with definite signs of neurocirculatory instability, had widespread vitiligo. Cases of lichen planus, dermatitis herpetiformis and scleroderma have not been included in the tables, owing to their small number.

DIFFERENTIAL DIAGNOSIS

As my associates and I have studied patients who have had various diagnoses elsewhere, and have shown our patients to visitors, we have obtained the idea that we have included in our group dermatoses that are often designated by other names. Cases of neurodermatitis and dyshidrosis have been included under the term "eczema." We do not diagnose a condition as eczema unless, in addition to the factor of sensitization, we see the eczematoid picture of erythema, edema, vesiculation, oozing, crusting, scaling or their sequelae, and these features are

13. Török, L.: Urticaria, in Jadassohn, J.: Handbuch der Haut- und Geschlechtskrankheiten, Berlin, Julius Springer, 1927, vol. 6, pt. 2, p. 145.

14. Drysdale, H. H.: Acute Circumscribed Edema, J. A. M. A. **89**:1390 (Oct. 22) 1927.

15. Pusey, W. A.: Alopecia Areata and Emotional Stress, Arch. Dermat. & Syph. **17**:701 (May) 1928.

16. Wright, C. S.: Etiology of Alopecia Areata: With Special Reference to the Effect of Experimental Nerve Injuries, Arch. Dermat. & Syph. **19**:365 (March) 1929.

almost never present in cases of neurodermatitis. Jadassohn [17] stated that he believed that more and more cases will be removed from the eczema group and will be placed in other groups, especially that of neurodermatitis. Sutton [18] stated: "There is a certain localized type of eczema characterized by sudden outbreaks, involving the flexures of the elbows, the anterior axillary folds and the inner extremities of the shoulders, which I believe belongs in the 'neurotic' group. . . . Another, and not less important group of cases, also occurring in middle aged women, is the peculiar neurotic type of eczema of the occipital region, which is not infrequently preceded by lichen chronicus simplex." So-called "eczema tyloticum" has proved in our cases to be neurodermatitis. The following case is illustrative:

CASE 1.—A waitress, single, aged 30, complained of lesions on the palms and soles. Since coming from England she had had considerable trouble, starting with pregnancy. She was caring for the child financially and was overworking. Two years before examination her sister had returned to England, and at about the same time the patient had been in an automobile accident. Since that time she had been emotionally upset and fatigued. One year later, she had noted severe itching and burning of the soles and to a slight extent of the palms. This was accompanied by lesions, which became thick and calloused.

Physical examination gave essentially negative results. The blood pressure was 150 systolic and 90 diastolic when first taken, and later was 118 systolic and 68 diastolic. The difference in the readings was attributed to the feeling of apprehension on her first visit and to the general neurocirculatory instability of this type of patient. The basal metabolic rate was minus 10 per cent. On the palms and soles were localized, erythematous, hyperkeratotic plaques. Neurodermatitis was diagnosed. This type of lesion is usually called eczema tyloticum, but neurodermatitis of the palms and soles is mentioned in the literature.

At times we have made the diagnosis of dyshidrotic eczema, but the condition generally turned out to be dyshidrosis with a superimposed dermatitis due to irritating applications. Plaques in dyshidrosis are rather sharply limited, while in true eczema the eruption is more diffuse. Dyshidrotic lesions, as well as most of the lesions in this entire group of dermatoses, often itch out of all proportion to the severity of the inflammatory reaction. This disproportion is not found in eczema.

Others designate certain forms of neurodermatitis, especially the flexural variety, as seborrheic dermatitis. We have gradually changed our concept of seborrheic dermatitis, and place more and more cases in the group of neurodermatitis (figs. 1 and 2). This is due to the presence of intense pruritus, resistance to the therapy for seborrheic dermatitis and definite relation to precipitating factors. Lesions of the

17. Jadassohn, J.: Aetiologie und Pathogenese des Ekzems, Eighth International Congress of Dematology and Syphilis, Copenhagen, 1930.

18. Sutton, R. L.: Diseases of the Skin, ed. 7, St. Louis, C. V. Mosby Company, 1928, p. 267.

neck are apt to be attributed to fur collars and other irritants. The absence of vesiculation, the failure to relieve the condition by removing the supposed offender, the presence of neurocirculatory instability and the relief obtained by appropriate measures therefore make the diagnosis of neurodermatitis.

Proponents of the sensitization nature of some of these dermatoses have evoked positive cutaneous reactions or perhaps the results from the use of various diets as arguments in favor of this assumption. Coexistence of hay fever and asthma is another argument. It is not difficult at times to obtain positive cutaneous reactions in these patients, but the simple withdrawal of the apparently offending food or substance

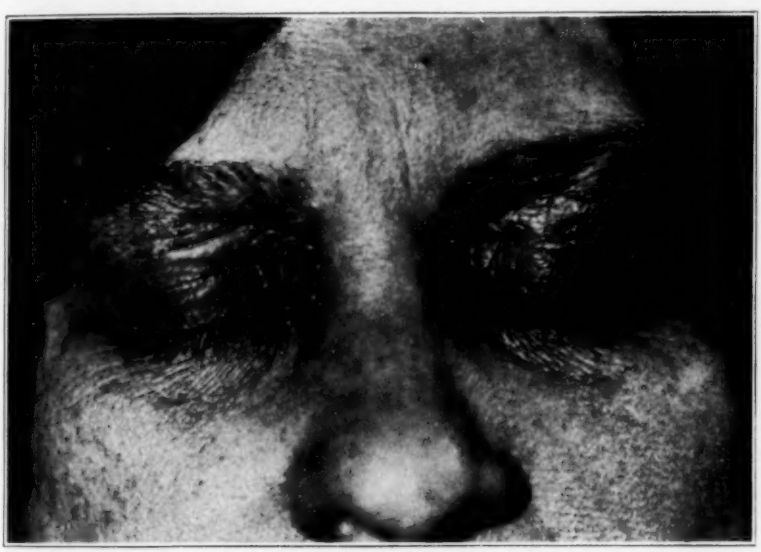

Fig. 1.—Neurodermatitis of the eyelids. This is usually called pruritic seborrheic dermatitis. These lesions appeared in the patient following several deaths in the family.

has little or no effect. Collateral factors must be scanned closely in passing judgment on this phase of diagnosis and therapy. A dietary régime carried out in a hospital, for instance, has only a limited significance, especially if the patient is many miles from home, because it is accompanied by rest, relaxation and removal from the normal precipitating environment. Asthma may alternate with neurodermatitis in the same person, or a flare-up of one may be accompanied by a flare-up of the other, as in one of our cases. In this instance, efforts to determine an offending substance by cutaneous tests were unavailing; the person was a typical example of our "instability type." The condition was relieved by a return to a more simple environment outside of

Chicago and was accompanied by a pleasant decline in nervous tension. Many of the cases of "hay fever" are simply vasomotor rhinitis, which frequently accompanies neurodermatitis. It has been present in several of our cases, but we have had practically no cases accompanied by hay fever due to sensitization. Some of these patients have had so much intranasal treatment, including even various operations, that they have persistent rhinitis as a result.

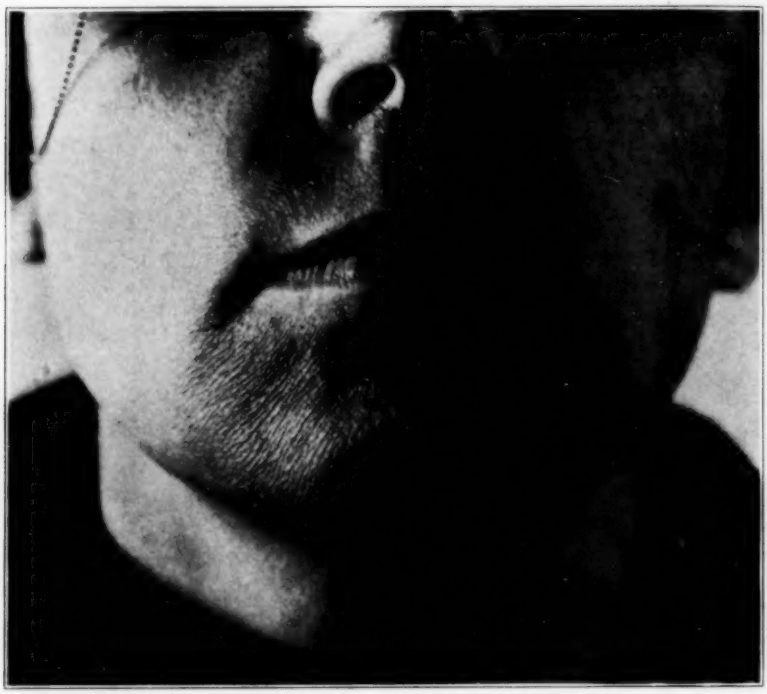

Fig. 2.—Neurodermatitis of the face. This is usually called pruritic seborrheic dermatitis. The grim expression reflects the tension under which some of these patients live.

Wilson [19] reported the case of a patient with hay fever along with flexural prurigo and eczematization, who was sensitive to several pollens. In the summary he stated:

"No evidence was obtained to support the view that his flexural eczema was an allergic phenomenon, for (a) it bore no relation to the hay-fever, (b) local application of the pollen to the skin produced no eczematous reaction, and (c) no improvement took place parallel with the decreased sensitivity of the skin to all pollens." Dermatitis caused

19. Wilson, W. A.: Flexural Eczema with Hay Fever, Brit. J. Dermat. **42**:320 (July) 1930.

by pollen is found on exposed surfaces, is erythematovesicular, and is eczema. Application of the offending pollen to the skin produces vesicular dermatitis.

Increased interest in fungus infection has been accompanied by a tendency to attribute dyshidrotic eruptions to this origin. We are frank to admit that we cannot distinguish clinically some of the eruptions where we have found a fungus from those where no fungus was found on repeated search. One must not lose sight of the possibility of preexisting dyshidrosis, with subsequent infection by a fungus. The recent tendency to attribute most cases to fungus infection has detracted attention from neurogenic dyshidrosis. Dyshidrotic eruptions have been called "toxic dermatitis," and possibly correctly so, although we do not know just what the origin of the possible toxin is.

All the aforementioned conditions tend to become worse or to recur, even under treatment. A definite exciting factor can always be found for this.

COMBINATIONS OF DERMATOSES

An interesting combination of dermatoses that my associates and I have not had the privilege of observing was reported by Hazen.[20] He reported a case of his own, and mentioned another case, of alopecia areata following roentgen therapy for neurodermatitis. He treated the two conditions as coincidental, but when one keeps in mind the fact that both conditions occur in the group of patients under consideration, it is not surprising to find them in the same person. In studying the various combinations, one is impressed by the fact that the group combining urticaria and angioneurotic edema tends practically to retain its unique identity, and various combinations of the others are seen, especially combinations of neurodermatitis with pruritus or dyshidrosis. This is analogous to the eczematous group, on one hand, and to the group combining erythema multiforme and exfoliative dermatitis, on the other. In the eczematous group the epidermal cells seem to be the site of the hypersensitiveness, while in the other group it is the cutaneous blood vessels that have been incriminated. These groups run true to form. In other words, if a patient has eczema, each recurrence will be eczema, and if he has a condition of another group, he will not return some day with eczema.

A few exceptions to this rule, apparent or real, have been noted. Two reasons suggest themselves for this: If it is considered that the weakest link in the chain of vulnerable points is attacked, we can thereby account for the particular dermatosis. Under certain conditions, the immediate precipitating factor might "spill over" and produce

20. Hazen, H. H.: Coincidences in Medicine, Arch. Dermat. & Syph. **22**:305 (Aug.) 1930.

another variety. We have seen a patient with severe neurodermatitis who gave a history of a recent swelling of the lips suggestive of angioneurotic edema. This patient had congenital syphilis, with marked deafness. She had withdrawn from society, had worried about her recently discovered syphilis, worked in a bank days and did housework nights. She was in constant fear of losing her position owing to her deafness, and her husband had difficulty finding work. She was in a rather bad state of mind and markedly fatigued.

Another patient with angioneurotic edema characterized by recurrent attacks appeared one day with a slight eruption on the neck, intensely pruritic, which was diagnosed as neurodermatitis. It disappeared in a few days. The patient was much fatigued and worried. When seen a few months later, she stated that the edema had not recurred, but she presented neurodermatitis.

The following two cases illustrate the possibility of a coexistence of dermatoses due to sensitization and dermatoses associated with neurocirculatory instability. It is an interesting fact that a fair number of patients with allergy show signs of instability. A patient with chronic neurodermatitis was seen with acute urticaria. She had eaten strawberries some time previously. The urticaria cleared up quickly and did not recur; the neurodermatis persisted. A second patient with hay fever and asthma provoked by exposure to cold or by ingestion of bread presented a recently appearing neurodermatitis. Her husband had been out of work all winter, they were in danger of losing a house that was partly paid for, and they were being sued for debts. She showed the typical picture of exhaustion.

The following case [21] illustrates the combination of allergy, asthma and neurodermatitis:

CASE 2.—A housewife, aged 30, complained of an extensive dermatosis of the face, neck, upper part of the thorax, arms and forearms. At the age of 14, she began to have asthmatic attacks, which were worse during the summer months. These continued until she was 23 years of age; then, following the birth of her first child, the asthma disappeared, and she began to have pruritus of the legs. Scratching was followed by an inflammatory eruption, which later appeared on the arms, face, neck and upper part of the thorax. The asthma recurred for a short time when she was 29, and during this time the dermatitis was somewhat improved. She had had cutaneous scratch tests, and had been told that her difficulty was due to ragweed pollens. She was a particular housekeeper and had to do her own housework and care for her children.

Physical examination showed her to be essentially normal. The blood pressure was 124 systolic and 78 diastolic on one occasion and 120 systolic and 64 diastolic on another. The basal metabolic rate after two days' hospitalization was plus 5.5 per cent. A note was made that the patient was nervous and unrelaxed.

21. The case was presented before the Scientific Session of the Division of Dermatology of the Department of Medicine of the University of Chicago, Nov. 7, 1930.

The skin of the arms and forearms was thick and lichenified, with many excoriations. On the face and the upper part of the thorax was an erythematous, edematous eruption, with many excoriations (fig. 3). On the back of the neck was a lichenified plaque. Neurodermatitis was diagnosed. Rest in the hospital, with soothing applications, produced marked improvement. The condition was aggravated after the patient's return home.

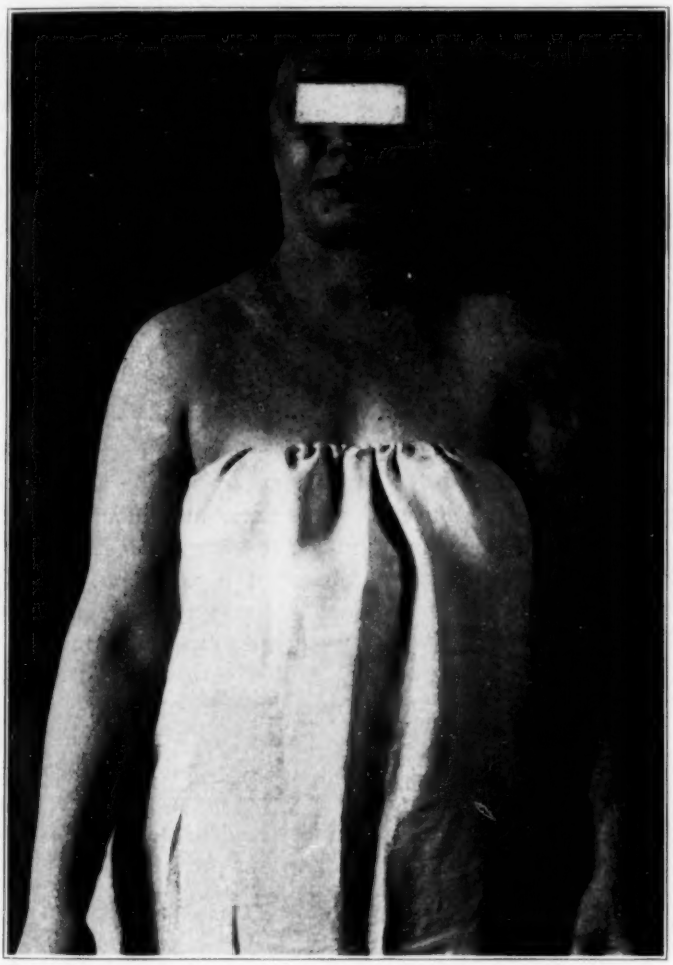

Fig. 3 (case 2).—Neurodermatitis of the arms, forearms, face, neck and upper part of the thorax.

Cutaneous scratch tests were performed by Dr. Harry Huber, and showed marked sensitiveness to silk. Application of several samples of silk for forty-eight hours produced no reaction, but when these areas were rubbed, definite urticarial lesions appeared. Wearing of silk clothing made no difference in the dermatitis.

Wise and Sulzberger [22] recently reported the case of a girl with neurodermatitis in whom urticaria and vasomotor rhinitis developed after the cutaneous application of trichophytin.

SEX, AGE AND OCCUPATION

When one studies the patients as individuals, disregarding for the moment their dermatoses, one finds certain interesting facts. There is a greater frequency of cases in women, and this is in accord with the comparative instability of woman's nervous system, and may be supporting evidence of the nervous origin of these diseases. These conditions have been seen by us only in the middle and upper strata of society, and not in persons doing day labor. It is true that the ambition of these persons will not permit them to remain at a low level, but it is also true that factors precipitating dermatoses are more frequent in the middle classes. Huber stated that allergic conditions also occur with greater frequency in the upper strata of society.

FAMILY HISTORY

The underlying condition seems to be hereditary, but not necessarily familial. It is rare that one cannot elicit a definite family history, not necessarily of dermatosis, but of some of the constitutional abnormalities, if they may be so termed. It is sometimes difficult to determine these factors, since the parents may not have been subjected to the proper environment to bring out inherent peculiarities. We have at times been able to trace definite signs and symptoms through four generations, and have repeatedly observed a dermatosis in more than one member of the same generation and also in two generations. Williams [23] recently reported on heredity in dermatologic conditions, and in the paper and discussion attention was called to the apparent neglect of this phase of dermatologic practice. In the discussion, Pollitzer reported alopecia totalis in four generations of one family. In the same discussion, Jadassohn reported the familial tendency of lichen planus and alopecia areata, two of the conditions in our group.

We have observed the following cases:

CASES 3 and 4.—A brother and a sister, the former a student, had resistant neurodermatitis of the exudative, eczematoid type of Kreibich. The brother also had vasomotor rhinitis. All cutaneous scratch tests gave negative results. We considered his condition to be neurogenic. He was studious and inclined to overwork. His sister had alopecia totalis. She had lost her hair at puberty, and it

22. Wise, F., and Sulzberger, M. B.: Urticaria and Hay-Fever Due to Trichophytin, J. A. M. A. **95**:1504 (Nov. 15) 1930.

23. Williams, C. M.: Cutaneous Manifestations of Heredity, Arch. Dermat. & Syph. **21**:721 (May) 1930.

had returned during pregnancy. It again came out five weeks post partum. The same sequence of events obtained at a subsequent pregnancy.

CASE 5.—A woman, aged 30, had urticaria. She had been overworking, and the lesions appeared during a visit from her mother-in-law. Decreased activity was followed by complete relief. Her mother was at that time in a state of chronic exhaustion following a life of unnecessary turmoil, and has since died rather suddenly. A few months later the patient brought her son, aged 3 years, to the clinic. He had flexural neurodermatitis, was extremely restless and would not take his daily nap. Resumption of the nap, treatment with the ultraviolet ray and administration of cod liver oil resulted in complete relief.

CASE 6.—A man, a professor in a university, had neurodermatitis of the face. He was in the throes of writing a book and was getting little rest. Some time later, his daughter had dyshidrosis, which had appeared during extra work at school. She also had chronic colitis, probably functional. The mother stated that treatment for the colitis by chemical means had been unsuccessful, while treatment on a bacterial basis was followed by relief and an increase in weight of from 10 to 15 pounds (4.5 to 6.8 Kg.). The mother also stated that the antibacterial treatment had been carried out in California, while the chemical treatment had been taken during the girl's strenuous existence in Chicago.

The following case illustrates an interesting family history and the difficulties that many of these patients experience in obtaining relief, owing to the neglect of underlying factors:

CASE 7.—A Y. W. C. A. executive, aged 41, complained of "sick headache," pruritic eruption of the nape of the neck and pruritus ani. The headache appeared following hard work and at the menstrual periods. The anal pruritus appeared when she was 19, and had been treated by local applications of various sorts, roentgen rays and three surgical operations, each affording only temporary relief. She had been inclined to overwork. Five brothers and sisters also had anal pruritus, and two of them had had operations for the condition. The patient had experienced her greatest improvement following a rather prolonged vacation. The blood pressure was 130 systolic and 78 diastolic on one occasion and 100 systolic and 66 diastolic on another. The basal metabolic rate was minus 6 per cent on the only determination.

Physical examination yielded essentially negative results. About the anus was an atrophic, depigmented telangiectatic plaque. On the nape of the neck was a somewhat lichenified, erythematous plaque. The diagnosis was migraine, pruritus ani, roentgen dermatitis and neurodermatitis.

The condition may have been so mild in some generations as not to have been noted, or early demise of a parent or grandparent may have prevented the patient from knowing whether or not the disease had been present. For this reason, it is not often possible to construct a family tree showing the positive and negative cases, as is possible in other diseases. The familial conditions discovered were: nervousness, irritability, fatigability, ambition, overwork, dermatoses, functional gastro-intestinal disturbances, psychoses and so-called "nervous breakdown." There are often marked differences between members of the same generation in a family, in that one may be extremely ambitious and another actually lazy.

CONSTITUTIONAL BACKGROUND

On superficial examination, all patients may not seem to fall into the same group. The underlying condition, however, seems to be the same. One patient may be as highstrung and temperamental as a thoroughbred race horse, and the next one as cool as the proverbial cucumber, but on further examination both are found to have neurocirculatory instability, occasionally with a tendency toward low blood pressure and less frequently with a low basal metabolic rate. The following two cases illustrate two extremes of the different types encountered:

CASE 8.—A young woman, a university student, aged 23, presented extensive pruritic dermatitis of the face, neck, upper part of the thorax, arms and hands. She had had dermatitis and asthma since childhood, and a brother had had the same condition. Her father was a dynamic, high tension worker. The patient was ambitious almost beyond conception. She had been an honor student at an art school the previous year. She stated that the dermatosis had cleared up completely during a summer at the shore. She was so restless during the interview that she could not grasp the ideas of statements and questions. The first few words of a sentence would provoke an answer on the same or on another subject. She repeatedly slid from one end of a bench to the other and back during the conversation. The blood pressure was 118 systolic and 78 diastolic. The basal metabolic rate was minus 24 per cent on the first and only determination. She would not spare the time for palliative treatment, let alone subject herself to a régime of rest. A psychiatric diagnosis was anxiety neurosis.

CASE 9.—A housewife, aged 35, complained of an eruption of the hands of twelve years' duration. It began as vesicles between the fingers, which extended to the dorsa of the fingers and hand and to the palmar surfaces. Up to two or three years before admission to the clinic, the eruption had been present intermittently, but since that time it had been present constantly. Her mother had been "nervous." The onset of the patient's trouble occurred during a trip through Mexico in 1916, during the revolutionary activities and prevalence of banditry, and it was accompanied by an intestinal upset. She had a worrisome disposition. Her sterility had been a source of worry, and continual financial difficulties had bothered her. She appeared calm during the examination and was not at all nervous, as the term is usually interpreted. However, when asked how she felt, she replied: "I feel depressed all the time." The blood pressure was 102 systolic and 70 diastolic, and the basal metabolic rate was minus 24 per cent on the first and only determination.

On the palms, extending onto the fingers and wrists, was a vesicular, scaly dermatitis (fig. 4). The diagnosis was dyshidrosis.

In studying the basal metabolic rates of these patients, we have obtained certain impressions. The first is that of the difficulty experienced by the patient in cooperating; the first tracings are generally irregular, and the first readings are apt to be from 10 to 20 per cent higher than subsequent readings. Lowering of the rate under conditions of rest in bed takes place more rapidly than with other persons. This question is to be given further study.

The apparent difference of patients on casual examination may account for the varied opinions recorded in the literature. In most communications no account has been given of these underlying factors. It sometimes takes considerable time to determine just what abnormalities a patient shows, but they can usually be ascertained by simple questioning. The following are some of the landmarks:

In a child, the most marked feature is restlessness and overactivity. The parents note that the child will no longer take a daily nap, but thinks of something to do and jumps up to do it. He will not remain at the table long enough to eat and may be somewhat undernourished.

Fig. 4 (case 5).—Dyshidrosis of the fingers, palms and wrists.

He is alert at bedtime, does not want to go to sleep and talks or gnashes his teeth in his sleep. He resents discipline and is restless in school. The child is keen and learns easily. As he becomes older, he takes his work seriously, is inclined to overwork and wants to be at the head of his class. Opening of school in the fall is the occasion for new cases and recurrences. The parents, recognizing that the child is bright, endeavor to have him make as good a record as possible. The tendency is to force the child in school, so that he may be one, two or three grades ahead of other children of the same age. This is a bad feature because it produces an abnormal social life. The child will not tolerate the idea of going to class without knowing his lesson. Many of these children

exhibit tics, and stammering is more frequent in this group than in others. These children hurry in everything that they do.

As adults, they are generally ambitious and hard working. Their attention is not easily held, however, and they are inclined to shift their activities on slight provocation. Thoughts go through their minds in a steady stream. They are dreamers and not backslappers. They are better inventors than judges. Their ambition prompts them to lay out a program that would be a burden for the most sturdy person, and from pride and other considerations they force themselves to carry it out, even to the detriment of their health. Many of them are constantly rushing, they are always behind, trying to get caught up. They are wide awake and alert at bedtime, and fatigued when it is time to get up in the morning. Some of them are fatigued most of the time, but others do not get tired unless they are forced to rest. Fatigue is a sensory phenomenon, as is pruritus. Sir James Mackenzie stated, "The sense of exhaustion. . . . What a tragedy we know so little about its real character." The argument has been presented that the fatigue noted in these patients is the result of an aggravating dermatosis, with loss of sleep. The following case illustrates the capriciousness of the sensation of fatigue, and also its presence for many years before the onset of the dermatosis:

CASE 10.—A housewife, aged 49, complained of a pruritic dermatosis of the face, neck, upper part of the thorax, arms and forearms. She stated that she had been easily fatigued all her life, and that a shopping tour would have to be followed by rest in bed. She had always been nervous and irritable, but more so lately. One year ago, she lost the sensation of fatigue and felt so much better because she could be more active. She overdid, and five weeks before admission to the clinic the aforementioned dermatosis developed. She had been treated by the usual palliative measures, with no relief.

Physical examination gave essentially negative results. The blood pressure was 106 systolic and 76 diastolic on one occasion and 110 systolic and 78 diastolic on another. The basal metabolic rate was minus 9 per cent. A note was made that the patient was restless, and that respirations were very irregular during the test. This tends toward a higher reading than would otherwise be obtained. On the face, neck, upper part of the thorax, arms and forearms was a diffusely erythematous, scaly dermatitis. Under a régime of rest, with soothing applications, the dermatitis subsided completely, but the patient again became markedly fatigued.

These patients react more strongly to all stimuli and are usually up in the clouds or down in the dumps. They often work by fits and starts, hard for one period, followed by a period of loafing. They are inclined to brood over troubles and to worry over trivial events. As Stokes so aptly stated, they are always "hollering down their back stairs," even though the surface appears tranquil enough. When greatly fatigued, they feel as described for patients with "soldier's heart" in Wilson's biography of Sir James Mackenzie: "Yes, they say they feel

rotten." They are conscientious about their work, and although perhaps the most conscientious, hard-working persons in the place, they may be worried about losing their jobs. They are inclined to want to do everything themselves, and cannot stand to see tasks poorly done. Their conscientiousness induces their superiors to overload them with responsibilities. We have repeatedly seen as summer students high school teachers with neurodermatitis who not only carry a heavy teaching schedule and spend all the summer in graduate work, but direct dramatics and other activities. To these people applies the well known saying, "If you want to get something done, give it to a busy man."

PRECIPITATING FACTORS

It is obvious that, even with the underlying constitutional background, precipitating factors play a large part in the production of, or aggravation of, a preexisting dermatosis. In European countries these conditions are relatively infrequent, owing to the lack of requirement of high-tension work and the oversupply of workers. The rest period of from two to two and one-half hours at noon is perhaps a life-saver for some of these persons, for they come to grief when they attempt to keep up with the rush in this country. Some of them have obtained relief by returning to their native lands. Fischl [24] stated that neurodermatitis is more frequent in Vienna since the war. This can readily be explained by the changed conditions, with the increased difficulty in social and business life. It is to be hoped that the ingress of American business into Europe will not be accompanied by the working hours now prevailing in this country.

Under conditions as complex as those in a large city like Chicago, these patients may constitute a rather material portion of the practice not only of dermatologists, but also of endocrinologists, gastroenterologists, neurologists and internists. Marriage and childbirth have been the aggravating factors in some cases. A strenuous position, such as that of private secretary to an exacting employer or that of teacher or of salesman, may be the exciting factor. Periodic outbreaks may be attributed to periods of stress in the patients' occupations. One of our patients, a social secretary, had urticaria only during the busy season of her exacting employer. I have seen extensive palmar and plantar dyshidrosis in a judge just before the opening of a term of court. The present business depression, the recent fiasco in the stock market, the overpopulation in large cities with the corresponding lack of employment, all have been factors. Illness in the family, a disagreeable family, disagreeable working conditions, all are culpable. Concomitant holding of a position in business and keeping house are precipitating factors in

24. Fischl, F.: Personal communication.

women. The presence of both sexes in most offices of the present day may result in extramarital relations that tend to disturb an otherwise placid existence. The entrance of woman into business has so complicated her existence that she is more often a prey to neurogenic dermatoses than previously.

ETIOLOGY AND MECHANISM OF PRODUCTION OF LESIONS

Considerable difference of opinion exists relative to the mechanism of the production of the various lesions, and few facts are available. Just what accounts for the sensation of pruritus, which is the cardinal symptom of most of the conditions studied, is unknown, although edema of the nerve endings is thought to have something to do with it. The same condition in the neurovascular end-organs has been advanced as the underlying feature of the disease with vascular causation. The sympathetic and parasympathetic systems and the endocrine glands have been made culpable, as has also the gastro-intestinal tract. The relation of the endocrine glands is difficult to prove, and one must exercise caution in blaming the gastro-intestinal tract. We have found functional gastro-intestinal disturbances in a fair percentage of these cases, and are inclined to believe that they have the same cause, namely, a nervous disturbance. Stokes and Pillsbury[25] suggested that the gastro-intestinal tract may be the source of a histamine-like substance that, in turn, could be the cause of urticaria. When one notes the marked alteration in the skin in herpes zoster, which is presumably produced by some reverse nervous stimulation originating in the posterior root ganglions, there is no good reason why a milder condition, such as slight edema of the nerve endings, producing pruritus, or more marked edema, producing a wheal, could not be produced directly or indirectly in the same way.

If one attributes neurodermatitis to sensitization to a protein, one must explain the regional distribution. If an internal toxin is blamed, there seems to be no good reason why the involvement is not more general. Bloch produced generalized eczema by intravenous injection of quinine into a patient who was sensitive to the drug. On the other hand, some conditions of the erythematous group have elective localizations. Much work remains to be done relative to the mechanism of the production of the lesions.

FUNDAMENTAL CONSTITUTIONAL MECHANISM

The patients in whom we are interested are distinct types in many respects. They are not difficult to recognize after a little experience,

25. Stokes, J. H., and Pillsbury, D.: The Effect on the Skin of Emotional and Nervous States: III. Theoretical and Practical Consideration of a Gastro-Intestinal Mechanism, Arch. Dermat. & Syph. **22**:962 (Dec.) 1930.

but efforts to establish organic lesions as the cause of their various difficulties have been unavailing. As children, they fall into the so-called neuro-arthritic group discussed. Pediatricians state that the signs and symptoms tend to clear up at puberty, but we find them reappearing, often in aggravated form, during the strenuous periods of early adult life. The patients present symptoms referable to various classifications, vagotonia, sympathicotonia, neurasthenia, etc., in all combinations, and on this basis it would seem advisable to add a list of dermatoses to the classification of functional nervous diseases.

It seems that the symptoms presented by the patients are best explained by the assumption of nervous hypersensitivity, hyperactivity and instability. The patients often have symptoms of general asthenia, which seem to be aggravated by excess physical and especially mental activity, particularly of the emotional type. Bolten's idea of inborn insufficiency or hypotonia of the sympathetic nervous system has support in our series, since in general the patients' blood pressures tended to be low. Many, however, had hypertension, and some exhibited considerable variation in arterial tension on different occasions, which was construed as being due to neurocirculatory instability. This instability is well illustrated in the group containing Raynaud's disease and scleroderma, in which one sees alternate spasm and relaxation of the peripheral vessels; these cases are examples of Guillaume's "neurotonie alternante." A majority of our cases would seem to fit into the vagotonic group. The various symptoms that the patients in these cases have are not regularly persistent, but vary a great deal from time to time. Alternation of asthma and dermatitis is well known, and the unreliability of the sensation of fatigue has been mentioned. The patient makes a different impression, depending on whether he is riding on the crest of the wave or in the trough of depression. The idea that these patients have inferior constitutional make-up is not borne out by our studies. It is true that they have neurocirculatory instability and are inclined to be prima donnas, but many of them occupy and fulfil satisfactorily the obligations of responsible positions, and are distinctly worth while, in contrast to indifferent persons, who do not acquire these dermatoses. Some of the patients have already adjusted their activities more or less, as will be mentioned under therapy, without which they would have difficulty in performing their functions.

The pitfalls and ramifications of the study of these patients may perhaps be illustrated by Neisser's words relative to another branch of dermatosyphilology:

> No one who has worked even superficially with this material can fail to notice that there is no single question in this field which can be answered by "yes" or "no," and that proponents of opposing ideas can plead their cause with equal justification. If one wants to do the best work, one must not blind oneself to the

possibility that one may be wandering along a false path. I think, at least, that we all should avoid one-sidedness, and so much more earnestly lend our ears to the opponent's ideas, respect them and try them out, because I believe that the most divergent paths lead to the goal.

From the practical standpoint, with, however, no absolutely proved basis for the ideas, but with many suggestive facts, we have evaluated the situation somewhat as follows: These patients are born with nervous systems different from their neighbors'. They are at the extreme ambitious end of the scale. They are hypersensitive, and they react more strongly to all sorts of stimuli, including painful ones. The cerebral portion of the nervous system seems to be hyperactive and hypersensitive, and a stream of thought constantly flows through their minds, especially when they are not concentrating on something. Sensations register strongly, and they are the victims of these sensations, which seem to exert a commanding influence over the patients more marked than their importance warrants. Their hypersensitiveness seems to account for their restlessness, and their restlessness for their ambition. Restlessness and ambition mean hyperactivity and increased demands on their bodies for energy. This tends toward a deficiency, which in turn seems to increase the nervous irritability, thereby producing still more demands for energy. This vicious cycle must be broken into, which we do by the methods discussed under therapy. The result is a lessened deficiency of energy, a lessened nervous irritability and an abatement of the signs and symptoms.

The dermatologist is fortunate in that he has objective evidence of this deficiency in the failure of the lesions to heal or in aggravation and recurrence. Convincing the patient that he overdoes is simplified by the improvement in his condition while he is on a vacation or even while he is on a pseudovacation, consisting of more rest and ultraviolet ray therapy. The idea of a deficiency of energy will be given support if subsequent study reveals a depression of the basal metabolic rate as suggested by the preliminary observations. The high rates obtained in some cases are not easy to explain, although two of them occurred in patients with hyperthyroidism. A single determination of the basal metabolic rate is generally high, and cannot be relied on. The patient must be relaxed, which in some cases obtains only after several tests. The following case illustrates the change in the determination after a little rest:

Case 11.—A housewife, aged 30, complained of pruritic dermatitis of the face, neck, upper part of the thorax, arms and forearms. She stated that her health had always been good, but that during the past four or five months she had become easily fatigued. The dermatosis had appeared gradually during the last two months. She had worried considerably over her husband's infidelity, and her

problem was particularly difficult of solution because her husband was her foster brother, and her parents had his interests at heart as well as hers. She was nervous and emotionally unstable.

Physical examination gave essentially negative results. The blood pressure was 104 systolic and 72 diastolic on one occasion and 100 systolic and 64 diastolic on another. She was hospitalized, and soothing applications were applied. Four days later her basal metabolic rate was minus 11 per cent. Nine days later the determination was minus 24 per cent. The dermatosis improved, as did the nervous irritability.

Multiple determinations of the basal metabolic rate are unquestionably necessary to obtain the true basal rate of patients of this group. Unfortunately, in all but a few of the cases studied thus far, only one

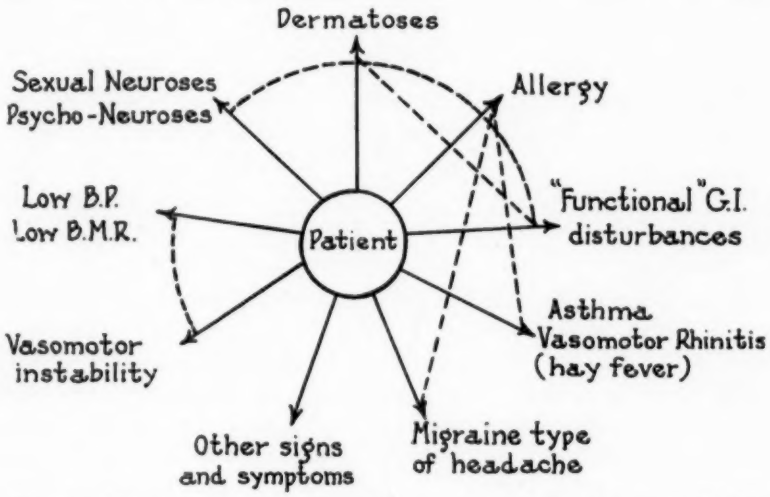

Fig. 5.—Diagrammatic representation of the patient with neurocirculatory instability. The solid lines represent conditions found singly or in groups, in various patients. The dotted lines represent theories relative to the causative effect of one abnormality in the production of another.

or two determinations were made. Further study is therefore necessary before this matter can be settled. The same applies to the question of the blood pressure, which appears to undergo unusual variability in these subjects, but is frequently low.

The impressions gained from the study of these patients may be presented graphically (fig. 5). The solid lines represent the various conditions that the patients present, which may occur singly or in groups. The dotted lines, on the other hand, represent ideas that have been brought forth at times, some of them on reasonable evidence and some on insufficient grounds. An example is the diagnosis of an eruption as allergic dermatitis because the patient has been found to be allergic to something. The significant feature is that treatment must be directed

toward the patient himself, and not alone toward the organ or organs immediately affected, although a combination of the two courses offers a better outlook in some instances. It is possible to relieve a patient of a phobia by psychotherapy, but he may return with another one. Roentgen therapy relieves many pruritic dermatoses, but they recur. If one relieves the pruritus, one has lost the best index to the patient's cooperation in a régime directed toward relieving the underlying factors. We therefore avoid roentgen treatment when possible. Dietary and medicinal measures relieve functional gastro-intestinal disturbances, but recurrence is the rule if the patient returns to a normal diet, unless treatment is directed toward the patient as well. In our cases treatment for the underlying exhaustion has proved to be more important than other measures.

THERAPY

As mentioned, therapeutic procedures are directed primarily toward the patient in general, instead of toward the skin alone, although at times a combination of the two is indicated. The general tendency is to direct attention solely to the skin, although some effort has been made to counteract apparent constitutional abnormalities. As stated, the basal metabolic rate is often low, although rarely markedly so. Many of our patients have taken thyroid gland preparations, evidently given with the idea that a deficiency of the thyroid gland exists. This idea has no sound basis, and one might be further led astray by the therapeutic results. The syndrome embracing Raynaud's disease and scleroderma and some other types of scleroderma appear to be on a basis of neurocirculatory instability, with alternate spasm and dilatation of the superficial blood vessels. Thyroid substance, if given in sufficient amount, vascularizes the skin, often producing improvement, although no real deficiency of the thyroid gland can be shown to exist. Our idea relative to the therapy for the conditions discussed is somewhat the same as that expressed by Christian,[26] writing in regard to functional cardiac disease:

> Endocrine disturbances, sympathetic and vagus imbalance, perverted metabolism, have been offered in way of explanation, and treatment based on these ideas has been advised. All of these seem very fanciful, and the majority of clinicians do not accept such as playing any significant causative rôle. It seems best to regard these patients as definitely subnormal in some respect, particularly in nervous stability, largely on a congenital or developmental basis. This idea gives a good key to an understanding of the limitations of treatment.

Precipitating factors can sometimes be removed, but often familial and other relations are difficult to correct. It is sometimes possible to

26. Christian, H. A.: The Diagnosis and Treatment of Diseases of the Heart, Oxford Monographs on Diagnosis and Treatment, New York, Oxford University Press, 1928.

iron out some of the rough spots by interviewing several members of the family. A change of occupation may help, but the present difficult economic situation makes patients hesitate relative to changing their occupations. We forbid them to commute long distances, especially women who do their housework in the evenings. (One of our patients commuted daily from a point 40 miles from Chicago, and did her housework at night.) The American "grind" seems to account for most cases of these dermatoses. A lunch hour of thirty minutes is a disgrace to an employer, and even one hour is all too short. Modern efficiency experts complicate working conditions, and it is a question whether it is worth while to save a few dollars and undermine the health and happiness of the employees. School authorities require teachers to pursue summer courses of study in order to obtain increases in salary. If they required a real vacation instead, the efficiency of the teacher would increase, and it would work for the better of all concerned.

In the management of children, it is necessary to realize that they are high strung and cannot be disciplined too severely. They can often be led, but never driven. They should not be allowed to play too strenuously. They should not be allowed to go beyond the normal grade for their age in school. Additional activities, such as music lessons and participation in entertainments, must be curtailed in some instances.

The underlying condition, namely, excessive nervous irritability and exhaustion, may be corrected in many ways. Reassurance often works wonders. If it is explained to the patient that he has inherited a certain type of nervous system that is responsible for his ambition, and that his make-up is to be preferred at all times to that of the lazy man, but that too much ambition, if not curtailed, has certain disadvantages, namely, one or more of the various conditions enumerated, the patient generally realizes that his condition has been properly evaluated, and is fairly apt to resign himself to a life of restricted activity. If he is told that his nervous system is hypersensitive, and that he should discount all sensations, agreeable and disagreeable, about 25 per cent in order to smooth out his curve of existence, the change is often marked. An easily understood analogy is that of a 100 horse power engine in a chassis designed for one of 40 horse power. The patient can readily understand what will happen if the engine is not kept throttled. Cultivation of lazy habits is a great aid, although the patient's sacre feu will never permit him to become actually lazy. Avoidance of rush is desirable. The one greatest aid is rest and relaxation, preferably after lunch, although a nap in the middle of the afternoon or just before or just after dinner may serve the purpose. The patient should be taught how to relax. This subject has been presented admirably by Jacobson, in his "Progressive Relaxation." The patient should be induced to accept a new philosophy of life, to realize that ambition must be curtailed, and

reminded of the saying of one of the country's great leaders: "A year's work can be done in ten months, but not in twelve."

The question of vacations is an acute one. Some employers allow no vacation with pay, and many allow only two weeks. It takes these patients two weeks to relax and start to benefit from enforced idleness. These two weeks are apt to be spent in a closed automobile in an effort to see how much of the United States and Canada can be covered in so short a time. The patients return to work in a state of fatigue, although the diversion has given them a false sense of having rested, and is perhaps even beneficial. We have observed patients who have not had a real vacation for many years, and others who have not been outside of Chicago for as long as fifteen years.

In the control of children, a daily nap should be insisted on. It may be necessary to divert the child's attention by means of a spanking, but after he falls asleep, he sleeps soundly for as long as two hours. It is sometimes advisable, both for children and adults, to shorten the period of the nap so that it will not interfere with sleeping at night. One of the best therapeutic means in our experience is exposure to artificial sunlight. This is accompanied by a let-down in nervous tension, the child sleeps better, and the dermatosis improves. Cod liver oil taken internally is also a valuable adjunct. It is important to explain the situation to the parents, so that the child may be properly managed and may be spared trouble later in life.

SPECIFIC THERAPY

In our opinion, the testing of the skin against various proteins in an effort to find something to which the patient is sensitive, and a short cut to cure, has been somewhat overdone. We have rarely seen any convincing results from this type of study and therapy, and then only in the urticarial group. It is true that many of these patients are allergic, but our experience and that of others have not shown a parallelism between the good results of specific therapy in hay-fever, for instance, and an accompanying dermatosis.

PALLIATIVE THERAPY

The standard local and general palliative therapy for the conditions discussed is well known and is found in all textbooks on dermatology. It is temporarily efficacious, but recurrences are the rule, unless predisposing and fundamental conditions are also corrected. Tradition dictates that we employ local applications, and they are valuable for their protective effect; for this we use mild applications. Roentgen treatment is avoided when possible, in order to preserve local symptoms as an index to the cooperation of the patient.

PROGNOSIS

Prognosis in regard to life is excellent. Many of these patients come from long-lived families and are themselves long-lived and active. They seem to be less subject to other diseases, especially infections, and parents often state that the children in this group have always been more healthy than their brothers and sisters. H. S. Plummer called attention to the resistance to disease offered by certain groups of persons, and this group seems to be an example par excellence. They usually escape the evils of high blood pressure.

From the standpoint of the dermatosis, it seems that the earlier in life the symptoms appear, the graver the prognosis, especially since the true significance of the condition is often not recognized, and proper measures are not taken to prevent aggravation and recurrence. This was also mentioned by Comby [1] relative to neuro-arthritic children. The severe cases in adults are those that have been present since childhood. A long-continued process seems to become irreversible, similar to that following recurrent inflammation in organs other than the skin, e. g., the kidney. Conditions coming on for the first time in adult life respond more readily to therapy. In analyzing the cases in which the condition appeared late in life, one often finds reasons for the late appearance. A school teacher in the fifties who presented neurodermatitis for the first time stated that she had spent her summers in the hammock on the farm. Many of these patients will not permit themselves to waste, as they say, a summer, and insist on attending summer school or doing other types of work. Some of the worst cases are so unstable that they will not permit themselves the necessary time for treatment. They run from physician to physician and from drugstore to drugstore in an effort to find something that will relieve them and still permit continuance of a life of stress and strain. It is only with the greatest difficulty that a physician is able to retain their confidence for any length of time. One of our greatest problems is to impress on the patient that the return of a feeling of well-being after therapy is not an occasion on which to permit his resuscitated ambition to reassert itself.

SUMMARY

Impressions are presented as obtained from the study of 204 unselected cases of generalized and localized pruritus, neurodermatitis, dyshidrosis, urticaria, angioneurotic edema, neurotic excoriations and alopecia areata. Some cases of lichen planus, dermatitis herpetiformis, scleroderma and possibly vitiligo seem to fall into this general group. Family histories are reviewed. The underlying nervous mechanism is discussed, and therapeutic measures are given.

CONCLUSIONS

The conditions mentioned seem to be found only in a certain type of persons, with the exception of some cases of urticaria.

The underlying constitutional background seems to be hereditary, but not familial. Many of the patients fall into the so-called neurasthenic group, with the picture of general asthenia and neurocirculatory instability. The constitutional symptoms are easy fatigability, nervous and mental irritability or depression, hyperkinesia, functional gastro-intestinal disturbances, headache, backache, vasomotor rhinitis and asthma.

The combinations of dermatoses in the same person are first angioneurotic edema and urticaria, and opposed various combinations of the others.

Therapeutic considerations consist, first, in the removal of the precipitating factors; second, in the correction of the underlying irritability and exhaustion, and third, in palliative therapy. Children should be carefully controlled in order to prevent serious difficulty later in life.

The prognosis is better if the dermatosis appears late in life. Cooperation of the patient is a necessary aid to therapy. Without this cooperation, palliative therapy is only temporarily efficacious.

From the evidence obtained, it would seem that this group of dermatoses should be given a place in the classification of functional nervous disorders. The designation "neurodermatoses" might well be applied to them.

POIKILODERMA VASCULARE ATROPHICANS

REPORT OF A CASE *

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Postmortem observations have been recorded in so few cases of poikiloderma vasculare atrophicans that the report of another case appears to be warranted.

REPORT OF A CASE

History.—Mrs. S. L., aged 66, born in Canada, of Scotch parentage, first noticed a cutaneous eruption on the left side of the neck about July, 1928. This condition persisted as a localized patch for one month, and then rapidly spread to involve the entire body. At no time since the onset had she been free from the condition. Muscular weakness developed about the time of onset. Within six months, this became so marked as to confine her to bed. A history of joint pains could not be obtained. At times, the skin became acutely inflamed and weeping; at times the acute stage subsided. There was always a moderate degree of inflammation. The pruritus was constant and severe. Early in 1929, she was under observation in the Royal Victoria Hospital, Montreal, when a diagnosis of erythroderma was made. Investigations carried out at that time revealed nothing of significance. Left mastectomy for "cancer" was performed in 1914. The menopause developed in 1908. There was nothing of significance, otherwise, in the past history. She was admitted to the Montreal General Hospital for examination on March 6, 1930.

Physical Examination.—Examination revealed a frail, greatly emaciated woman, who was bedridden. She was mentally clear. Besides the condition of the muscular apparatus and the skin, nothing of importance was noted in the physical examination. With the exception of the upper parts of the chest and back, the genital and the pelvic regions, the entire surface of the skin was involved in an erythematopigmentary eruption.

The skin of the scalp was decidedly erythematous and wrinkled. On closer examination, the erythema in this region was seen to be due to the presence of a diffuse network of fine capillaries. There was, in addition, a mottled, dirty brownish pigmentation with intervening clear areas. One's first impression was that there was a generalized thinning of the skin; in places, however, nonatrophic areas could be made out. For the most part, the skin was freely movable over the underlying fascia. The hair was absent from the top of the scalp, and over the sides it was thinned out, coarse and dry.

The face and the neck were diffusely involved in the erythematous pigmentary eruption. The atrophy and the erythema predominated, the pigmentation being a minor element. The skin was thinned out and markedly erythematous, with a diffuse network of telangiectatic vessels, which faded out on pressure. There

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was a peculiar edematous appearance to the eyelids, although no pitting could be elicited. Fine capillaries could be seen here as well. Some mottled pigmentation was present. There was fine, branny desquamation over the affected parts.

The extremities were diffusely involved but presented two entirely different pictures. The flexural regions were acutely affected, offering the appearance of an acute dermatitis with edema and fissuring. Shading out from these parts and on the extensors, there gradually appeared an entirely different picture. As the acute erythematous element subsided, there were seen coarse telangiectatic vessels standing out on a background of diffused erythema, which on close examination was seen to consist of a network of fine capillaries. There were scattered, small patches of brownish pigmentation, varying in size and shape, with apparently depigmented skin between them. There appeared to be diffuse atrophy with fine wrinkling of all the skin. The backs of the hands presented a picture chiefly of mottled pigmentation and atrophy, with the erythema a minor element.

The trunk was involved in a bizarre manner. There was a bandlike involvement about the entire circumference of the trunk, extending from about the nipple line above to just above the anterosuperior spines below. As far as the upper part of the thighs, the skin was not involved. The diseased skin was finely wrinkled, with a sharply outlined margin. The same erythematopigmentary eruption as was noted elsewhere was present. There were also the same type of telangiectasia and the same mottled pigmentation. Fine to coarse telangiectatic vessels were scattered in network fashion throughout the diseased part. Some of the vessels could be made out only by the use of the "loupe," while others were coarse and prominent to the naked eye. On close examination, the skin was not diffusely and evenly atrophic. There was an uneven and irregular atrophy, the skin being unchanged in parts. The pigment was diffused in a mottled manner throughout the affected parts. The margins presented a deeper, more diffuse pigmentation, which gradually faded out into the surrounding healthy skin. There was present a fine, branny scaling which shed easily when scratched. No hairs could be seen.

The patient was bedridden, and motion of the large joints was accompanied by pain. She lay in bed with her knees and elbows in a position of semiflexion. Movement of these joints was markedly limited, and if attempts at further motion were made, she would complain of considerable pain. There was also a moderate degree of flexion of the fingers. The cheeks were sunken; there was shrinkage of the tissues of the nose, and the hair was long, dry and fine. There was marked atrophy of all the palpable muscles, as well as of the facial ones. There were loss of expression and difficulty in swallowing. The tongue was reddened and smooth, with loss of papillae. The mouth could be opened only partially. The palpable muscles elsewhere were wasted and thinned, and in places they were barely made out.

General physical and neurologic examination revealed nothing of significance. Examination of the nose and throat revealed no abnormality.

Laboratory Examinations.—A blood count on admission revealed: red blood cells, 3,300,000; hemoglobin, 60 per cent; white blood cells, 13,250; differential count: polymorphonuclear leukocytes, 78 per cent; lymphocytes, 18 per cent; eosinophils, 2 per cent; transitionals, 2 per cent. Chemical analysis of the blood showed: urea nitrogen, 14 mg. per hundred cubic centimeters; creatinine, 1.36 mg.; uric acid, 3.47 mg.; sugar, 0.109 mg.; plasma cholesterol, 216 mg. Examination of the stool revealed normal constituents. Examination of the gastric contents revealed normal, free and combined acid content, both in the fasting state and after the test meal. Microscopic and cultural study of the bile following bile drainage

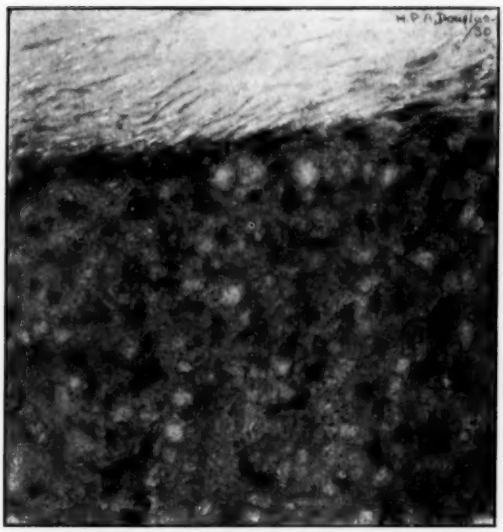

Fig. 1.—Water color painting of the skin of the abdomen in a case of poikiloderma vasculare atrophicans

UNIV. OF MICH.

presented no abnormality. The dye test of the gallbladder showed no evidence of disease. The basal metabolic rate was +7.3. The Wassermann test of the blood was negative. Protein tests of the skin performed while the patient was under observation in the Royal Victoria Hospital, Montreal, were negative. Roentgen examination of the pituitary fossa and of the chest showed no abnormality.

Biopsy.—On March 11, 1930, a piece of skin and underlying muscle was removed from the left side of the abdomen. Part of this was fixed in formaldehyde for microscopic study. The rest of it was inoculated into a guinea-pig. Three months later the animal was killed and examined; the organs and tissues were normal on both gross and microscopic examination. Four days after the biopsy the patient had high fever, the temperature ranging between 101 and 104 F. Examination of the chest showed signs of right-sided lobar pneumonia. A culture of the blood made on March 19 gave positive results for Streptococcus hemolyticus. The patient died on March 20.

Autopsy.—Macroscopic Examination: Autopsy was performed one hour post mortem by Dr. D. M. Angevine. Rigor mortis was present. The peritoneal, pleural and pericardial cavities showed no pathologic changes. The heart was essentially normal.

The right lung weighed 500 Gm., the left, 390 Gm. The right lung was salmon pink, shading to a purplish red at the base and posteriorly. The upper and middle lobes were adherent. The upper part of the lung was crepitant, and the lower lobe was subcrepitant. The cut surface showed the lower part of the lung to be deeply engorged, and a purulent exudate escaped from the bronchi when pressure was exerted. The large bronchi contained a mucopurulent exudate. The left lung was apparently normal, with the exception of congestion about the base.

The spleen was small and fibrotic.

No lesion was noted in the stomach or intestines. Many of the mesenteric veins were markedly dilated, and a few fairly large hemorrhoids were present about the anus.

No lesion was noted in the pancreas.

The liver weighed 1,600 Gm. It was of about normal size and mahogany brown. The capsule was smooth and glistening and the edges somewhat rounded. Two firm, calcified, white nodules were present, one on the free margin near the gallbladder and the other at the top of the right lobe, where it was adherent to the diaphragm. Both were somewhat similar and of the size of marbles. They cut like hardened celloidin, and contained a soft, mushy yellowish material. They were round and well circumscribed. The liver had a nutmeg appearance. The cut surface was bloody and had a nutmeg appearance also. The gallbladder showed no lesions. The extrahepatic ducts were not involved.

The kidneys were quite similar. They were red and fairly firm. The capsule stripped easily and left a smooth surface. A cut surface showed the cortex and medulla well differentiated. Cortical and medullary rays were straight. The vessels were not unduly prominent. There was an increase in the amount of peripelvic fat. The pelvis was clear, and the ureters patent.

The suprarenals showed no gross lesion.

The mucosa of the bladder was considerably injected, and contained some fine "gravel." A small bluish-gray piece of tissue filled the uterine cavity. It was attached to the uterine mucosa near the right cornua.

The intima of the aorta showed many atheromatous plaques throughout and a few calcified areas. These were most marked in the abdominal aorta.

Grossly, the sulci and gyri of the brain were apparently normal. There was no evidence of atrophy, inflammation, hemorrhage or tumor.

The postmortem diagnosis was poikiloderma vasculare atrophicans and slight bronchopneumonia of the right lung.

Microscopic Examination: Microscopic examination made by Dr. J. E. Pritchard revealed an acute inflammatory exudate within the small bronchi of the right lung which extended for a short distance into the surrounding tissue. There was a considerable amount of passive congestion and edema. The alveoli of the right lower lobe were filled with an acute inflammatory exudate. A few of the alveoli were markedly dilated, and the blood vessels were greatly engorged. In the lower lobe of the left lung, there was an acute exudate involving

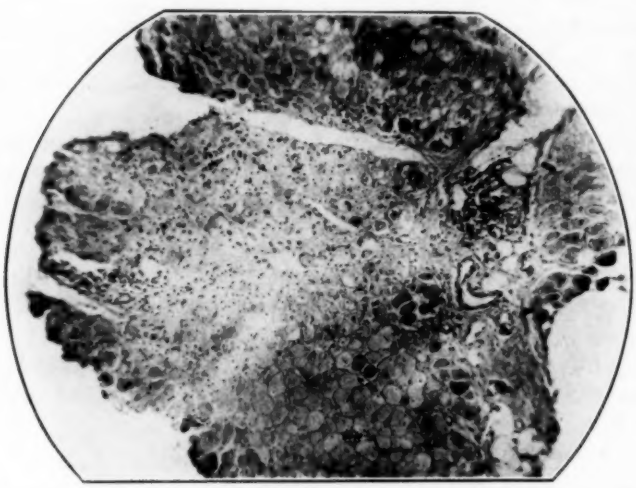

Fig. 2.—Low power photomicrograph of a cross-section of rectus abdominis muscle showing lymphocytic infiltration, with destruction of muscle fibers. Hematoxylin and eosin stain.

most of the alveoli and many of the terminal bronchi. A few clumps of cocci in chains were seen in some of the blood vessels.

The heart showed no lesion. The muscle fibers were pale and fairly well preserved. The nuclei stained well. Section of the aorta showed a considerable degree of atherosclerosis.

In the kidneys, there was moderate sclerosis of the glomeruli. Just beneath the capsule in both kidneys there was a considerable amount of lymphocytic infiltration.

All the lobules of the liver were surrounded by a well marked zone of fatty infiltration. The central portion showed engorgement, with necrosis at the periphery. All of the individual liver cells showed marked fatty degeneration; several small collections of fatty cells were noted. There was marked hyaline degeneration of the central arterioles of the spleen. The suprarenals, the stomach and the intestines were normal.

Section of a polyp in the uterus revealed cystically dilated uterine glands, which were filled with a pale, bluish-staining material. The genital organs were normal.

Examination of the nervous system, revealed no lesions in the celiac ganglion, sciatic nerve, motor cortex, basal ganglia, cerebellum, pons, medulla and choroid plexus. Myelin sheath stains at various levels of the spinal cord showed no pathologic changes.

Examination of the muscle fibers revealed interesting changes. The rectus abdominis muscle, a piece of which was removed ante mortem, presented a marked deviation from the normal. There was no uniform alteration. Beside normal or nearly normal fibers would be seen others profoundly altered. The principal alteration consisted of a dissociation of the fibers, which appeared separated one from the other by clear spaces. In the dissociated fibrils, the striations were completely absent. In an earlier phase, the involved fibrils were edematous and coarsely or finely granular; the striations were less visible. All gradations could be seen between this phase and the former. The nuclei were present even in the most advanced stage. They stained deeply, were ovoid and appeared more numerous than normally. In places, there was connective tissue replacement of degenerated muscle fibers. There were interstitial foci of small round cells, with vascular dilatation in the perivascular connective tissue and, to a lesser extent, between the fibers (fig. 2).

The psoas and biceps muscles, which were obtained and examined post mortem, showed essentially the same changes. In addition, there was marked edema between the muscle fibrils and a diffuse, acute inflammatory reaction, which was more marked in localized areas. Clusters of streptococci could be seen.

The skin presented considerable alteration. Three pieces were studied. The skin from the abdomen was obtained before the onset of the pneumonia (figs. 3 and 4). It showed marked atrophy of the epidermis. There was a mild degree of hyperkeratosis, but no parakeratosis. The stratum granulosum was thickened. even in the most atrophic parts, and varied in thickness from three to eight cells. The width of the malpighian layer varied considerably; in parts, it was only a few cells deep, in parts, almost normal, with the papillae for the most part flattened out. A mild degree of spongiosis was present, and a few wandering lymphocytes could be seen. The basal cell layer was disorganized, and perinuclear vacuolization was observed. In the papillary layer, the capillaries were markedly dilated. They were grouped, and some parts of the skin presented no involvement. The capillaries were engorged with red blood cells and were surrounded by a mild, round cell infiltrate. Chiefly about the blood vessels, but elsewhere as well, there was a marked pigmentary deposit. The striking feature was the alternate increase and decrease of pigment in the corium. The prussian blue reaction for iron showed the absence of this substance. The collagen stained poorly; it was edematous and revealed evidence of hyaline degeneration. Verhoff's stain for elastic tissue showed its complete absence in the papillary zone. In the deeper portions of the corium, the elastic tissue was disorganized and disrupted. No hair follicles or sebaceous glands could be seen. There was moderate atrophy of the sweat glands, with a mild round cell infiltrate about them.

The other sections studied were obtained post mortem and were complicated by the presence of streptococcal septicemia. The section from the scalp showed essentially the same changes as that from the abdomen; there persisted a few atrophic follicles and sebaceous glands, although in parts they were completely absent.

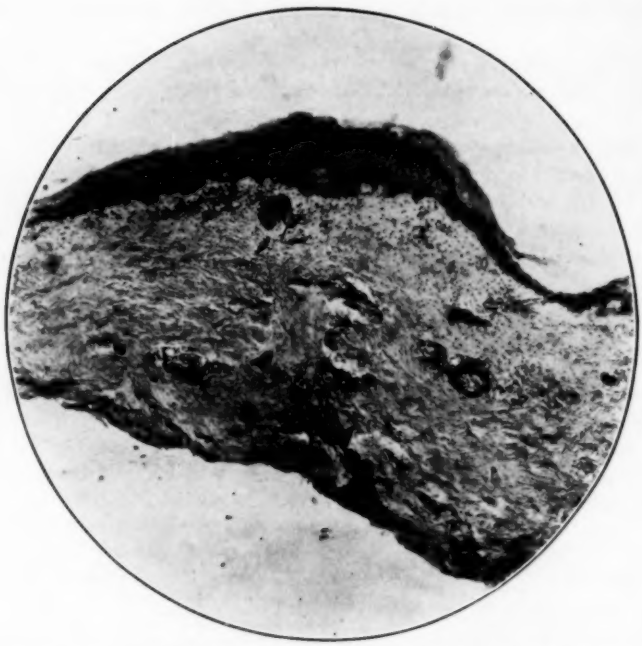

Fig. 3.—Low power photomicrograph of a section of skin from the abdomen. Hematoxylin and eosin stain.

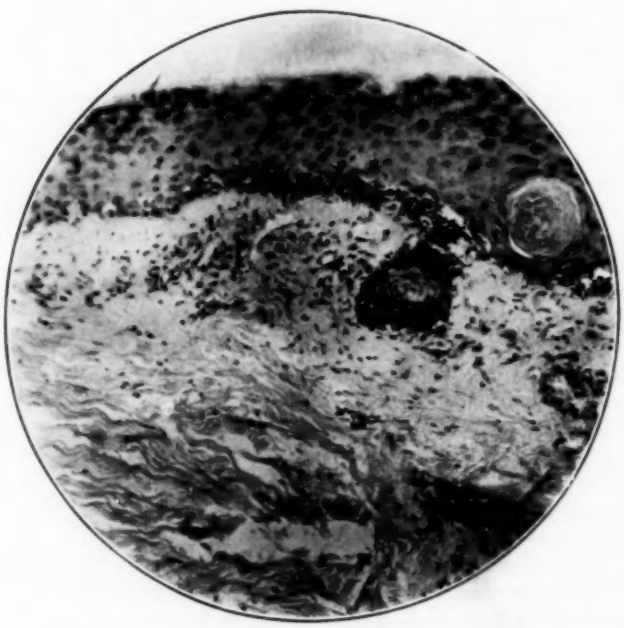

Fig. 4.—High power magnification of figure 3.

A section obtained from the arm presented the stage of acute dermatitis, with fissuring and edema. There were more marked edema and cellular infiltration than in the previously mentioned sections. The hyperkeratosis too was greater. There was a diffuse, acute, inflammatory reaction scattered throughout the subcutaneous fat. Several clusters of cocci in chains could be seen. Otherwise, there was no change from the other sections studied.

A piece of skin obtained post mortem from the abdomen revealed the same changes as did the antemortem section. In addition, there could be seen a few clusters of streptococci, singly and in chains, at the junction of the muscle and fat.

COMMENT

The case of a patient, who presented a curious erythematopigmentary eruption of the skin with patchy atrophy, giving the appearance of a healed x-ray dermatitis, is described. There was an associated polymyositis of a severe grade, which totally incapacitated the patient. Little can be said as to the differential diagnosis, the appearance of the cutaneous lesions being quite typical.

The pathologic changes differed little from those previously reported in similar cases. The postmortem observations revealed little of primary significance. With the exception of the changes in the muscle and skin and the terminal septicemia, the other findings were usual for a woman of the patient's age. The changes in the skin were interesting, and all phases from the acute inflammatory stage to the chronic atrophic stage could be studied. The differences were those of degree. The voluntary muscles were all affected with various stages of inflammation, from the early catarrhal to the late hypertrophic. The involuntary muscles were unchanged.

From an etiologic point of view, little can be said. Nothing in either the clinical or the pathologic studies helped to make the cause clear. The consulting internist (Dr. A. H. Gordon) suggested the possibility of a severe nutritional disorder.

The previous cases of poikiloderma vasculare atrophicans that have been reported may be classified into two groups: (*a*) those in which no etiologic or associated factors could be found, and (*b*) those in which a major associated condition, which may or may not have been of etiologic significance, was present. In the latter group were the cases reported by Lane,[1] Keim[2] and others, in which there was lymphoblastoma, the group with endocrine disorders reported by Bloch[3] and

1. Lane, J. F.: Poikiloderma Vasculare Atrophicans, Arch. Dermat. & Syph. **8**:373 (Sept.) 1923.

2. Keim, H. L.: The Lymphoblastomas, Arch. Dermat. & Syph. **19**:590 (April) 1929.

3. Bloch, B., and Stauffer, H.: Skin Diseases of Endocrine Origin, Arch. Dermat. & Syph. **19**:22 (Jan.) 1929.

the group with myositis reported by Petges and Clejat,[4] Bowman [5] and others. Of the previously recorded autopsies, only one [6] revealed death from sepsis.

Recently, Petges [7] has attempted to classify the cases showing poikilodermatous skin changes into three groups: (1) the poikilodermie of Civatte, (2) the poikiloderma vasculare atrophicans described by Jacobi and (3) the cases with myositis for which Petges has offered the name poikilodermatomyositis. In this third group, Petges included such cases as the ones reported by Davison [8] and by Allan,[9] which showed only minor poikilodermatous changes in the skin. Nicolau [10] agreed with him in separating such cases from the main group, and offered for them the name "poikilodermie myopathique." They were both agreed that the condition was an expression of a profound disorder of internal causation, a toxic process with manifestations on the skin. Instead of multiplying the names that have already been offered, it would seem preferable to call these cases by the title given by Jacobi—poikiloderma vasculare atrophicans—with the name that Petges has proposed—poikilodermatomyositis—as the subordinate one.

Dr. J. E. Pritchard, Assistant Pathologist, the Montreal General Hospital, aided in the preparation of this report.

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4. Petges and Clejat: Sclérose atrophique de la peau et myosite généralisée, Ann. de dermat. et syph. **7**:550, 1906.

5. Bowman, K. M., and Clark, E. C.: A Case of Poikiloderma Atrophicans Vasculare, Arch. Dermat. & Syph. **15**:583 (May) 1927.

6. Geisler, H.: Zur Frage der Poikiloderma atrophicans, Dermat. Wchnschr. **85**:1133 (Aug. 13) 1927.

7. Petges, Mongeau, Lecoulaut and Délas: Poikiloderma vasculare atrophicans, Bull. Soc. franç. de dermat. et syph. **36**:817 (July) 1929.

8. Davison, C.: Dermatomyositis, Arch. Dermat. et Syph. **19**:255 (Feb.) 1929.

9. Allan, W.: Dermatomyositis or Scleroderma, Arch. Dermat. & Syph. **19**: 265 (Feb.) 1929.

10. Nicolau, S.: Poikilodermie myopathique, Bull. Soc. franç. de dermat. et syph. **36**:823 (July) 1929.

ECZEMA SOLARE AND PORPHYRIA *

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Bazin [1] first suggested, in 1855, the possibility that sunlight acting on a sensitive skin could produce various types and degrees of harmful reactions. In 1898, McCall Anderson [2] introduced the thought that some photosensitizing substance might play a rôle in such cases, but it remained for Ehrmann [3] to demonstrate the presence of such an agent, hematoporphyrin, in hydroa vacciniforme. Since then many cases of hydroa vacciniforme associated with hematoporphyria have been reported in the literature. Various authors have assigned to this photosensitizing substance the rôle of etiologic agent in such cases. It is important, however, to note that the substance has been demonstrated in only approximately 25 per cent of the cases.[4] Moreover, many cases of hydroa vacciniforme have occurred in which attempts to demonstrate hematoporphyrin have failed.[5] Klauder [6] reported a case of hydroa in which hematoporphyrin was present in some samples of urine but absent in others. Goeckerman and O'Leary [7] reported a case of photodermatitis in which no hematoporphyrin could be found.

While hydroa vacciniforme has been recognized as the outstanding example of the solar dermatitides, it has also been known that sunshine could paint the picture of eczema on certain sensitive skins. Such cases

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1. Bazin: Cours de semiotique (cutanee), Paris, Delahaye, 1862.

2. Anderson, McCall: Brit. J. Dermat. **10**:1, 1898.

3. Ehrmann, S.: Arch. f. Dermat. u. Syph. **97**:75, 1909.

4. Mason, V. R., and Farnam, R. M.: Acute Hematoporphyria, Arch. Int. Med. **47**:475 (March) 1931.

5. Little, Pernet and MacLeod, in discussion on Barber, H. W.: Hydroa Aestivale, Proc. Roy. Soc. Med. (Sect. Dermat.) **17**:18, 1923.

6. Klauder, J. V.: Hydro-Vacciniforme, Arch. Dermat. & Syph. **14**:615 (Nov.) 1926.

7. Goeckerman, W. H., and O'Leary, Paul: Photodermatitis, Arch. Dermat. & Syph. **15**:103 (Jan.) 1927.

have been reported by Barber and Howitt,[8] Graham,[9] Veile,[10] Greenbaum,[11] Highman[12] and Duke.[13] None of these patients was examined for hematoporphyria. The first case of eczema produced by sunshine in which hematoporphyria was demonstrated was that reported by Goeckerman and his associates.[14] Their patient presented an eczema which was undoubtedly precipitated by exposure to sunshine, and which could be reproduced in situ by the application of ultraviolet rays. Hematoporphyrin was found repeatedly in the urine and was increased 250 per cent following general irradiation with ultraviolet rays. The authors made the statement, "it seems to us that these observations point more to the cells of the skin as possibly being the source and seat of the abnormal chemical action than to abnormal metabolism of deeper structures producing an excessive amount of hematoporphyrin which acts as a photosensitizing agent."

Very little or no work has been done on the presence of photodynamic substances in other instances of hypersensitivity to sunshine, such as urticaria solare, xeroderma pigmentosum, cheilitis actinica, fagopyrism and summer prurigo of Hutchinson.

PORPHYRIA

Porphyria is the general term used to designate the presence of one of the porphyrins in the body. In general, the porphyrins may be regarded as pigments which, according to some investigators, arise during the metabolism of hemoglobin. These investigators were unable to state whether the formation occurs during the anabolic or the catabolic phase of the hemoglobin cycle. The chemistry of the porphyrins has been investigated by Fischer,[15] who has isolated several different ones. The porphyrin occurring in urine, uroporphyrin, differs somewhat from the one occurring in the feces, coproporphyrin. Many authorities have

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8. Barber, H. W., and Howitt, F. C.: Some Observations on Light Sensitization, Guy's Hosp. Rep. **76**:314, 1926.

9. Graham, James E.: Hydroa Aestivale, J. Cutan. Dis. **14**:41 (Feb.) 1896.

10. Veile, quoted by Graham (footnote 9).

11. Greenbaum, S. S.: Dermatoses Due to Light Sensitization, Am. J. Dis. Child. **34**:81 (July) 1927.

12. Highman, W. J.: Eczema and Dermatitis, Arch. Dermat. & Syph. **11**:303 (March) 1925.

13. Duke, W. W.: Asthma, Hay Fever, Urticaria and Allied Manifestations of Allergy, St. Louis, C. V. Mosby Company, 1926, p. 251.

14. Goeckerman, W. H.; Osterberg, Arnold E., and Sheard, Charles: Eczema Solare in a Case of Hematoporphyrinuria, Arch. Dermat. & Syph. **20**:501 (Oct.) 1929.

15. Fischer, H.: Ztschr. f. physiol. Chem. **95**:34, 1915; **97**:109, 1916; **98**:14 and 78, 1916.

been able to demonstrate the presence of porphyrins, but in minute quantities, in the urine, feces and bile of normal people. Porphyrins in increased amounts have been found in patients suffering from typhoid fever, melena, cirrhosis of the liver and lead poisoning. But in such cases no signs or symptoms commonly attributed to porphyrin intoxication occur.

A substance known as hematoporphyrin has been prepared by Hoppe-Seyler by the action of sulphuric acid on hematin. Similar compounds have been prepared from hemin, myoglobin and chlorophyll. It should be understood that these are artificial products which differ from the porphyrins that occur in diseases in human beings.[16] It is important to remember this fact when investigating these disorders. Common usage, however, sanctions the use of the term "hematoporphyrinuria" in referring to the porphyrinuria of man.

EXPERIMENTS WITH PHOTODYNAMIC SUBSTANCES

There have been many experiments performed in attempts to sensitize animals or man by means of injections of photodynamic substances. In animals the classic work was done by Pfeiffer.[17] He demonstrated that animals could be so sensitized to light by the intravenous injection of hematoporphyrin that a relatively short exposure to light resulted fatally.[18] Death occurred with symptoms of shock and was preceded by symptoms of cutaneous irritability. When animals spotted with areas of light and dark hair were given intravenous injections of hematoporphyrin and exposed to sunlight, dermatitis developed only on the white areas. The pigment in the darker spots and hair evidently protected them. Moreover, if sensitized animals were painted with hematoxylin, the dye protected them against reactions to sunlight.[18] No specific pathologic changes occurred in animals that died from hematoporphyrin-sunlight shock. Smetana[18] stated that the anatomic changes in these animals were inadequate to explain the cause of death. Passive transfer of the sensitization failed. Normal animals receiving blood from sensitized animals failed to react to sunshine. This would seem to indicate that the sensitizing substance is not blood-borne. Further substantiation of this comes from Smetana's experiment with parabiosis. Two white rats were so joined that their circulating bloods intermingled. One was sensitized to hematoporphyrin by subcutaneous injection and

16. Schumm, O.: München. med. Wchnschr. **40**:1853, 1913; Ztschr. f. physiol. Chem. **90**:1, 1914.

17. Pfeiffer, H.: Der nachweis photodynamischer Wirkung fluoresierender Stoffe am lebenden Warmbluter, in Abderhalden, E.: Handbuch der biochemischen Arbeitsmethoden, Berlin, Urban & Schwarzenberg, 1809, vol. 5, p. 563.

18. Smetana, Hans: Studies upon the Physiological Action of Hematoporphyrin, J. Exper. Med. **47**:593, 1928.

reacted to sunshine in the characteristic manner. No reaction occurred when the other animal was exposed to sunshine, although it was joined to the sensitized animal. Still further evidence in this respect is Smetana's finding that exposure of the circulating blood of a sensitized animal (through a quartz glass cannula) to ultraviolet rays did not produce death.

Meyer-Betz [19] gave himself an intravenous injection of 0.2 Gm. of hematoporphyrin (Nencki) and became highly sensitive to sunshine. His eruption took the form of a very acute edematous dermatitis rather than that of hydroa vacciniforme.

All of the foregoing experimental productions of sensitization to sunshine have been accomplished by the injection of synthetic hematoporphyrin, which, as we have previously pointed out, differs from the porphyrins found in man. Very little work has been done experimentally with the porphyrins from man. Fraenkel [20] could not produce sensitization in animals by the injection of porphyrin obtained from a patient suffering from congenital hematoporphyria. Other failures have been reported in animals and in man. Duke [13] injected a 1:1,000 solution of hematoporphyrin (evidently the synthetic) intradermally into his own skin, that of two normal assistants and that of a number of patients suffering from allergy. The sites of the injections were then exposed to sunshine, with no effect other than a stinging sensation.

Hausmann [21] has suggested that porphyrin may occur in two forms, one which sensitizes to light and one which does not. Fischer [22] believed that the porphyrin which sensitizes to light is dependent on the porphyrin from the feces, i. e., coproporphyrin, or its mother substance, rather than on uroporphyrin.

Weidman [23] believed that an immune phase existed in cases of light sensitization, as he was unable to reproduce hydroa vacciniforme in a sensitive patient by means of sun, wind or light at certain periods between attacks.

WAVELENGTHS OF LIGHT CONCERNED

Most writers have reported that the violet and ultraviolet rays of the spectrum were the ones concerned in precipitating reactions of the skin

19. Meyer-Betz, F.: Untersuchungen über die biologische (photodynamischer) Wirkung des Hämatoporphyrins und anderer Derivate des Blut und Gallenfarbstoffes, Deutsches Arch. f. klin. Med. **112**:476, 1913.

20. Fraenkel, E.: Experimentelles über Hämatoporphyrie, Virchows Arch. f. path. Anat. **248**:125, 1924.

21. Hausmann, W.: Zur sensibilisierenden Wirkung der natürlichen Porphyrine, Biochem. Ztschr. **77**:268, 1916.

22. Fischer, quoted by Mason and Farnham (footnote 4, p. 476).

23. Weidman, F. D., in discussion on Boardman: Hydroa Aestivale, Arch. Dermat. & Syph. **15**:497 (April) 1927.

in sensitized animals or patients. Thus, Ward,[24] working with a patient in whom urticaria developed on exposure to sunshine, found that only the rays from the violet end of the spectrum produced the urticaria. No determinations for porphyrin were made on this patient. After reviewing the literature and experimenting on their own patients, Barber and his associates [8] stated that "Rays at the short end of the visible and the long end of the ultra violet produce the maximum amount of erythema and the lesions in the adult cases of hydroa; whilst those in the extreme ultraviolet end of the spectrum do not penetrate sufficiently to produce a reaction." Ehrmann, quoted by Feit,[25] showed that light that passed through blue glass was just as potent in causing the eruptions as the sun's rays, but that when the light was passed through red glass, which absorbed the ultraviolet rays, no lesions resulted. Urbach, in a personal interview with one of us (Dr. Templeton), stated that he had demonstrated sensitization to bands of light other than ultraviolet and violet. He tested his patients with various portions of the spectrum as obtained after filtering light through pieces of glass that eliminated the bands not desired.

CLINICAL TYPES OF PORPHYRIA

Porphyrins have been demonstrated in the urine or feces in three separate types of cases:

1. Hematoporphryia congenita. This is the symptom complex with which we are most concerned in this article. It occurs in infants, and no symptoms may be present at birth or for some months thereafter. Possibly the first abnormality that may be noted is that the infant passes urine of a Burgundy wine color, or that a staining of the diapers by such urine may be seen. If the urine is examined for porphyrin, large amounts will be found. As a rule, no objective or subjective symptoms are produced until the infant reaches the age when it is exposed to sunshine. Thereupon, a vesicular eruption, hydroa vacciniforme, appears on the exposed portions of the body and, in healing, leaves vacciniform scars. Recurrent attacks come with each summer's sunshine, but tend to become milder and sometimes disappear as puberty is passed. These children remain in good health and show no evidence of neural involvement. A few cases have been reported in which sensitization to light did not exist.

2. Hematoporphyria acuta. This variety occurs in adults and is characterized by severe pain in the lower part of the abdomen associated with peripheral neuritic pains. An ascending neuritis and weakness of the extremities may precede the acute abdominal attack by several

24. Ward, S. B.: New York M. J. **81**:742, 1905.

25. Feit, Herman: Light as an Exciting Agent in Lupus Erythematosus and Other Dermatoses, J. M. Soc. New Jersey **24**:226, 1927.

months. More frequently, the onset is abrupt with severe pain in the lower part of the abdomen, nausea, vomiting and fever. Abdominal symptoms are so acute that laparotomies have been performed on many of the patients. Associated with the abdominal pain are many symptoms pointing to involvement of the nervous system. Pains radiate to the arms and legs and are stabbing and neuritic in character. Extreme unrest and nervousness are present at first, to shade over into delirium, convulsions and coma later. Wrist and foot drop may be noted. Symptoms of bulbar paralysis may close the picture. The mortality is very high. The urine is dark red or black and contains large amounts of porphyrin. In spite of the high degree of porphyria present, there is no sensitization to light.

3. Hematoporphyria chronica. This term describes the cases of porphyria produced by the ingestion of sulphonmethane, phenobarbital and allied drugs of the barbituric series. These patients may be free from symptoms or may have conditions resembling hematoporphyria acuta. Haxthausen has reported sensitization to light in such patients.

To the foregoing classification should be added eczema solare associated with hematoporphyia, originally described by Goeckerman and further described by us in this paper.

Barber [8] has classified light sensitization (not porphyria) into two groups, the congenital and the adult type. The patients with the congenital type reacted clinically, as with hydroa vacciniforme, and showed porphyrin in the feces on either a meat or a meat-free diet. Barber concluded that this congenital sensitization is probably often if not invariably caused by a porphyrin. On the other hand, he did not believe that the cases of light sensitization in adults (which generally showed a solar dermatitis rather than hydroa) were due to a porphyrin, as he never found porphyrin in the urine. There was a deficiency in gastric acidity in these cases. In some such cases the eruption improved or disappeared when the hydrochloric acid deficiency was corrected and when meat was omitted from the diet and fecal vaccines were given. Barber concluded that the adult type of light sensitization was produced by some intestinal toxemia, bacterial or otherwise.

PATHOLOGY

Smetana [18] studied at autopsy animals that died from hematoporphyrin shock. He stated that the autopsy changes in such animals were insufficient to explain their deaths. Mason and Farnham [26] studied a patient who had died of acute hemotoporphyria. A very complete autopsy revealed no visceral pathologic changes of note except in the nervous system: "Of particular interest was the evidence of a diffuse

26. Mason and Farnham (footnote 4, p. 473).

degeneration of moderate degree in all sections of the peripheral nerves. . . . The process involved the fibers uniformly throughout the extent of the section. . . . It is evident that the process was a true parenchymatous degeneration."

To the best of our knowledge, there have been no previous autopsy reports of patients suffering from hematoporphyria congenita. We are reporting such an autopsy herein in which no visceral pathologic changes were present to disclose the cause of death.

REPORT OF CASES

CASE 1.[27]—*History.*—Shirley M. was seen by us at the age of 2 years because of a dermatitis of the arms and face which had appeared following a severe sunburn at the age of 10 months. The acute sunburn had slowly subsided but had left an erythematous dermatitis in its wake. This dermatitis occurred in peculiar marbled groupings on the arms, neck and face. Very little itching seemed to be present. During winter months or when protected from sunshine, the dermatitis retrogressed but did not entirely disappear.

The delivery was normal at full term. The patient had had whooping cough and bronchopneumonia at 18 months of age. Plenty of vitamins had been included in the diet. She had never passed Burgundy wine-colored urine. She had not had any symptoms referable to the nervous system, or acute abdominal pain.

There was no history suggestive of porphyrin disease of the skin or nervous system in the family. The mother had had three miscarriages. Her Wassermann reaction was negative. One brother and one sister were apparently in normal health.

The patient's urine was examined for porphyrin at the time of the original examination and was found to be positive. Following the patient's death in 1931, the mother's and sister's urine was found to contain porphyrin, although they were apparently in normal health. Urine from a brother contained no porphyrin.

Course of the Disease.—The dermatitis would almost disappear when the patient was kept out of the sunshine. During the summer of 1930, she was given sunbaths by her grandmother, who thought that sunshine would be good for her. She immediately suffered from an acute exacerbation of her dermatitis. It was noted, as the child grew older, that she became weaker and frequently stumbled when walking. It was difficult to say whether this stumbling was due to weakness or to photophobia. The photophobia gradually increased to such a severity that she had to be kept in a darkened room. Her eyelids were kept closed except when in such a room. Her eyes seemed to be even more sensitive to light than was her skin. No conjunctivitis was present. An ophthalmologist saw her and suggested that the photophobia was due to a retinal sensitization to light, it being an ectodermal structure as is the skin. His report read:

"Examination of the Right Eye: Slit-lamp examination of the cornea shows a mottled thickening in Bowman's membrane which can only be seen with oblique slit illumination. Direct ophthalmoscopy shows apparently an entirely normal cornea. There are no changes in the lens or vitreous. The retina is hyperemic

27. This patient was presented at the 1929 clinical meeting of the American Dermatologic Association in San Francisco, with the diagnosis of "beginning xeroderma pigmentosum or solar eczema."

but no other changes can be made out. The macular area is normal. The optic disk is clear and distinct. The blood vessels are entirely normal. Retinoscopy under homatropine was done (atropine was deemed inadvisable because of the general skin sensitivity to light). Following the homatropine physostigmine (eserine) was used until the iris had returned to normal.

$$\text{ODV: } + 3.00 = 3.50 \times 20$$
$$\text{OSV: } + 2.50 = 3.00 \times 170$$

In consultation, Dr. Joseph McCool of San Francisco could only find a suggestion of the changes in Bowman's membrane, nothing definite. He believes that these changes are intermittent and transitory and occur in conjunction with exacerbations of the general skin reactions."

On March 13, 1931, the patient was admitted to the Children's Hospital because of an acute illness of four days' duration. The onset was with vomiting, which had continued up to the time of admission. It was not projectile. Slight abdominal pain had been present. During this illness the patient had had spells of stupor lasting about fifteen minutes, during each of which her pupils became dilated and she could not be aroused. She had had no diarrhea or constipation, convulsions, fever or dark urine. She had become progressively weaker. The dermatitis of the face and forearms was still present.

Physical Examination.—Physical examination revealed a 3 year old girl, who was dehydrated and extremely toxic, lying in a semistuporous condition; the respirations were shallow; the pulse was thready and extremely rapid; the patient was apparently moribund. The head and scalp were normal. The ears were normal except for a slight reddening of both drums. The nose was normal. The mouth, lips and tongue were very dry. There were two white spots on the left buccal mucosa surrounded by a red areola, not typical of Koplik's spots. Grossly, the eyes were normal. The throat was red; there was a postnasal discharge; the tonsils were not visualized. The neck was normal; there was no rigidity or adenopathy. The lungs were normal, except for crepitant râles in the base of the left lung anteriorly. The heart, abdomen and genitals were normal. The extremities were normal except for the cutaneous condition, which was described as follows: The skin was dry and very inelastic (dehydration). There was a peculiar dusky red mottling over both forearms and hands.

Procedures Performed in the Hospital.—A bilateral myringotomy was performed, but no pus was liberated. The patient was given 400 cc. of a 10 per cent dextrose solution intravenously and 500 cc. of physiologic solution of sodium chloride subcutaneously. A tuberculin test with a solution of 1:1,000 given intradermally was negative after twenty-four and forty-eight hours.

On March 15, the patient's condition became much more serious, being accompanied by an acetone odor to the breath and marked air hunger. She was given 300 cc. of a 10 per cent dextrose solution and 400 cc. of citrated blood intravenously.

Examination of the eyegrounds by Dr. Lando revealed no pathologic changes.

The temperature ranged from 98.6 on admission to 108.8 F. just before death. It was impossible to get a correct estimation of the pulse. The respirations ranged between 40 and 45. The patient died at 3:10 a. m., on March 16.

Examination of the blood showed: hemoglobin, 70 per cent, Tallquist; white cells, 15,000; red cells, 4,680,000; lymphocytes, 31 per cent.

Urinalysis showed: color, yellow, clear; reaction, acid; albumin, 1+; sugar, 2+; diacetic acid, none; acetic acid, none. Microscopic examination revealed a few pus cells with hyaline and granular casts.

A culture from the nose and throat for Bacillus diphtheriae was negative. Examination of the stools by Dr. Kofoid disclosed Entameba histolytica.

A specimen of urine obtained the day prior to death contained no porphyrin. Pieces of the spleen, brain, skin, ependyma, liver, gallbladder, kidney, heart and bile contained no porphyrin.

Clinical Diagnosis.—The diagnosis was hematoporphyria acuta et congenita.

Autopsy Report.—Autopsy was performed on March 16, at 11 a. m., by Dr. W. W. Cross. The body was that of a child about 3 years of age. Rigor mortis was fairly established. Marked ecchymoses were present on the dependent part of the body, neck and chest. Evidently the skin eruption that was observed previous to death had disappeared to a great extent, and the lesions were not apparent.

The thymus was of normal size.

The lungs were dark bluish. There was a small amount of fluid in the right side of the chest. No patches of pneumonia were found. The heart was apparently normal in size; the aortic valves and coronary artery were patent. There was no congenital defect in the wall of the heart; the valves on the right side were normal. The pericardium was normal.

The stomach was distended with gas, the bowels moderately so. The omentum was normal, lying over the small bowel. The liver was normal in appearance; the cut surface showed normal tissue. There was the usual amount of fluid in the cavity, and some of the abdominal fluid was bile-stained. The spleen was normal in size and on section.

The right and left suprarenal glands were normal in color and size. The surface of the left kidney was smooth and mottled with distended veins. On section, there was a granular appearance to the cortical material. The papillae were not congested.

The mucous membranes of the pelvis and calices were normal.

The right kidney presented the same appearance as the left (no gross pathologic changes; the section was the same as that of the left kidney).

The meninges were apparently normal. There were no evidences of pathologic changes, with the exception of a slight distention of the cortical vessels. The surface was normal. Sections of the brain did not disclose any gross changes.

Summary.—An infant aged 3 suffered from an extreme sensitization of the skin to light. Hematoporphyrin was present in the urine at a time when her skin was acutely involved. Symptoms suggestive of neural involvement were present, such as weakness of the extremities, stumbling and severe photophobia (retinal sensitization?). Her general health was seriously undermined, and death finally took place from an illness which could not be otherwise explained and in which some symptoms suggested the abdominal syndrome seen in acute hematoporphyria. No porphyrin could be found in her urine or viscera.

Case 2.—*History.*—Marjorie O., aged 19, consulted us in the fall of 1929 because of an erythematous dermatitis of the face, neck and arms of one year's duration. This eruption was limited to the exposed parts, stopping abruptly wherever the skin was protected from light. The V of the neck showed a pronounced dermatitis. Most of the face was involved, but the eruption stopped abruptly on the cheeks and forehead wherever the hair was draped, protecting the skin. Her general health was good. No symptoms referable to the nervous sys-

tem were present. There was no photophobia. She complained of occasional mild pain in the abdomen. No symptoms suggestive of focal infection could be elicited. There had been no ingestion of drugs. She stated that various tests and counts and a urinalysis had been normal prior to her visit to us. Marked seborrhea of the scalp was present.

As the patient was positive that sunshine aggravated the dermatitis and that it had improved during the winter months, we advised treatment by avoiding sunshine. No examinations were made at that time for porphyrinuria.

We then lost track of her until the fall of 1930, when she returned complaining of the same type of erythematous dermatitis. Again, the eruption occurred only on the exposed parts, being sharply marginated by the clothing and by waves of hair. Again, she stated that it had disappeared during the winter months, only to reappear with the summer sunshine. Pruritus was present to a moderate degree. The character of the eruption was that of a diffuse, dry, slightly squamous dermatitis or eczema. No vesicles had ever been present.

Her mother stated that the patient had had no convulsions in infancy or any other symptoms referable to the central nervous system. Nor had she ever passed any wine-colored urine or had any eruption suggestive of hydroa. There was no suggestion of porphyrin diseases in any of her ancestors.

Laboratory Examinations.—The Wassermann reaction was negative; the hemoglobin, 75 per cent; erythrocytes, 4,440,000; the color index, 0.8; leukocytes, 8,550; polymorphonuclears, 62 per cent; mononuclears, 38 per cent. There was no change in the morphology of the cells. The basal metabolic rate was —9. Urinalysis gave negative results except for a definite presence of porphyrin. When the urine was examined during the winter of 1930, while her skin was normal, it contained no porphyrin.

The patient was next seen in April, 1931. Her dermatitis had again disappeared during the previous winter, but was reappearing under the influence of sunshine. Her urine again contained hematoporphyrin.

The following tests were applied to portions of her skin that had been proved to be sensitive to sunshine. One-half skin unit of unfiltered x-rays produced no eruption. The application of Hanovia ultraviolet rays for one minute at a distance of 16 inches (40.64 cm.) from the skin did not bring out a dermatitis. Next, 1 inch square areas of skin that reacted to sunlight were exposed for one and one-half hours to sunshine filtered through various colored glasses. These glasses permitted the passage of various wavelengths of light as follows:

Glass 1. 3340-3660 angstrom units. No reaction
Glass 2. 4800-5090 angstrom units. No reaction
Glass 3. 4050-5780 angstrom units. No reaction
Glass 4. 7000-20,000 angstrom units. No reaction
Glass 5. 3660-30,000 angstrom units. No reaction

Only the square area exposed directly to sunlight without the interposition of any glass showed a positive reaction as a mild dermatitis.

Summary.—A 19 year old girl presented eczema solare that disappeared during the winter or when her skin was protected from light.

Experimentally, she reacted only to unfiltered sunshine. No signs or symptoms of neural involvement were present. Her urine contained porphyrin while she suffered from the dermatitis, but this disappeared during the winter when her skin was free from the eruption.

EXAMINATIONS FOR PORPHYRINURIA IN PATIENTS NOT SENSITIVE TO LIGHT

Stimulated by Goeckerman's work, we desired to study the question as to whether or not porphyria might be a result of cutaneous stimulation by light rather than a cause of the light sensitization. A number of patients were examined for porphyria.

TABLE 1.—*Patients Examined for Porphyrinuria Following Exposure to Ultraviolet Rays* *

Positive for Porphyrinuria				Negative for Porphyrinuria			
Name	Sex	Diagnosis	Portion of Body Irradiated	Name	Sex	Diagnosis	Portion of Body Irradiated
A. W.	F	Acne	Chest and back	E. S.	M	Pityriasis rosea	Trunk
L. W.	M	Vitiligo	Whole body	M. R.	M	Chronic colds	Whole body
C. S.	M	Psoriasis	Whole body	R. S.	F	Sinusitis	Whole body
H. S.	M	Pityriasis rosea	Whole body	J. H.	F	Psoriasis	Whole body
D. B.	M	Acne	Trunk	E. B.	F	Acne	Face and trunk
J. H.	M	Pityriasis rosea	Trunk				
D. E.	M	Seborrheic dermatitis	Face and trunk				
C. G.	M	Pityriasis rosea	Trunk				
E. L.	F	Dermatitis herpetiformis	Whole body				
Y. I.	F	Eczema	Whole body				
J. N.	F	Pityriasis rosea	Trunk				

* These patients were all adults. The urine was collected within twenty-four hours after a therapeutic exposure to ultraviolet rays in suberythema or very mild erythema doses. In some cases several similar treatments had been given previously.

TABLE 2.—*Determinations of Porphyrin in Adult Patients Suffering from Dermatoses Not Related to Light* *

Name	Sex	Diagnosis	
G. P. M.	M	Seborrheic dermatitis	Urine negative for hematoporphyrin
J. K.	F	Eczema of face, neck and arms	Urine negative for hematoporphyrin
R. C. M.	M	Eczema of whole body allergic?	Urine negative for hematoporphyrin
A. H. S.	M	Pityriasis rosea	Urine negative for hematoporphyrin
W. G.	M	Eczema of face, neck and trunk	Urine positive for hematoporphyrin
M. S.	F	Generalized exfoliated dermatitis, arsphenamine	Urine positive for hematoporphyrin

* These patients had not been exposed to ultraviolet rays.

Method of Determination of Porphyrin.—The method followed in all of our cases was that of Garrod.[28] The urinary phosphates were precipitated with 10 per cent sodium hydroxide. Eighty per cent of the porphyrins are carried down with the phosphorus. The solution is filtered. To the precipitate hydrochloric acid alcohol is added. The characteristic absorption spectrum of the acid porphyrins is easily identified in the solution. The method is fool proof and reliable. In one half of the cases this method and also the method of acetic acid precipitation of

28. Garrod: Inborn Errors of Metabolism, New York, Oxford University Press, 1923, p. 136.

the porphyrin were used. The precipitate was dissolved in hydrochloric acid alcohol, as in the other method, and the spectroscopic examination made. Both methods gave the same results.

Normal Controls.—Five perfectly healthy ambulatory adults were examined for porphyrinuria. Not the slightest spectroscopic absorption band of porphyrin could be found in any of the urine.

The urine of ten hospitalized patients was examined for porphyrinuria. None of the patients had a skin disease. Of the ten specimens, nine were negative and one showed the presence of porphyrin. The ingestion of barbital could not be definitely excluded in this one case.

TREATMENT

The first and obvious thing to do for patients sensitive to light is to protect them from sunshine. This may be partially accomplished by having them wear long sleeves, high-necked dresses and broad-brimmed hats. The exposed parts can be protected by means of creams that filter out the ultraviolet rays. Boardman [29] suggested the use of rouge. Barber [8] suggested the use of a cream containing quinine, because of its fluorescence in the same manner as a light-sensitive skin and, hence, its absorption of ultraviolet rays. We have thought that an ointment containing a sodium salt belonging to the naphthol-sulphonic acid series protected our patients to some extent.

It has been stated that these patients could be desensitized to light by gradually increasing doses of sunshine or ultraviolet rays, beginning with homeopathic doses. We have had no experience with this procedure.

The most encouraging therapeutic results have been reported by Barber.[8] By the use of a low protein, meat-free diet, the administration of hydrochloric acid by mouth, the control of constipation and the administration of a mixed fecal vaccine prepared according to the Danysz method, he was able to desensitize some of his adult patients who were sensitive to light.

COMMENT

It is difficult to reconcile the facts as we find them with the older accepted belief that hematoporphryia is the cause of the sensitization to light. In the first place, porphyrin has been known to be associated with only one fourth of the cases of hydroa vacciniforme, the best example of the light dermatoses. It has been absent in other instances of photodermatitis. On the other hand, huge quantities of porphyrin may exist in the urine and feces without producing any sensitization of the skin to light. This is illustrated in the severe cases of hematopor-

29. Boardman, in discussion on Boardman: Hydroa Aestivale, Arch. Dermat. & Syph. **14**:342 (Sept.) 1926.

phyria acuta and in the symptomatic porphyria seen in some of the acute diseases. Evidence that cutaneous sensitization to light has been experimentally produced in animals or man is founded on insecure grounds. The hematoporphyrin that was injected in such cases was a synthetic hematoporphyrin which differs chemically from the porphyrins found in man.

There would seem to be a relationship in some cases between the occurrence of porphryia and the light-sensitive states. However, we are inclined to believe that the porphyria is a result of the reaction of the ectodermal structures to irritants rather than the cause of the hypersensitiveness of these structures. Ultraviolet rays are the agent that most commonly, acting on the skin, produces porphyria. That this production of porphyria can take place in the absence of light sensitization is proved by the porphyrinuria that occurred in our eleven nonlight-sensitive patients following irradiation with ultraviolet rays. The occurrence of porphyrin in the urine of two of our patients whose skins were quite irritated by widespread dermatoses not related to light is evidence that cutaneous irritation other than that resulting from ultraviolet rays may occasionally be associated with porphyria.

SUMMARY

Two cases of eczema solare associated with porphyria are reported herein. The one occurred in a healthy young girl of 19 and was associated with no symptoms except those referable to the skin. The other occurred in an infant and was associated with symptoms referable to the nervous system such as are seen in hematoporphyria acuta. The sensitization to light of another ectodermal structure, the retina, resulted in a severe photophobia. Death occurred. The autopsy is reviewed.

Porphyrinuria was produced in eleven nonlight-sensitive patients by ultraviolet irradiation. It also occurred occasionally in patients showing widespread dermal irritation from dermatoses not related to light.

It is our opinion that porphyria is probably a result, rather than a cause, of dermal sensitization.

Editorial

SUMMARIES AND ILLUSTRATIONS

Recently a correspondent sent to the ARCHIVES some criticisms of summaries or conclusions and illustrations as they appear in dermatology. They seem altogether just and also constructive. These criticisms are especially significant because they emanate from an editor and writer whose vividness and clearness of style are notable. He is, moreover, an investigator who has to his credit not only many achievements of his own, but also a great number of disciples who have done distinguished work. Nobody is better qualified to offer advice to writers in medicine. He says:

> My point about summaries is briefly this: A summary should summarize the article not merely describe it. General statements about the contents of articles, and particularly of articles embodying the results of research, are quite likely to be practically worthless. This statement, I think, is substantiated, at least in part, by the summaries on page — and — of the January, 1932, number of the ARCHIVES OF DERMATOLOGY AND SYPHILOGY. Would it not have been possible actually to summarize the results in practically the same space? The effort of the summary should be to state in the fewest words possible the real essence of the article.
>
> In regard to illustrations of scientific medical articles, I hold that, generally speaking, illustrations should be limited to appearances worth illustrating. Of course, opinions will differ greatly on this point, but I think we should resist the tendency to illustrate appearances with which we are perfectly familiar, e. g., ordinary tubercles, giant cells, staphylococci and the like. The appearance of these objects is as familiar to medical workers as that of the common brick and require illustrations no more than a brick would need to be illustrated under ordinary circumstances. And then I think we should resist the tendency to needless multiplication of illustrations of the same object. By way of example, look at the — illustrations of the same object on pages — of the ARCHIVES just mentioned. Examples of this tendency to overillustrate can be multiplied easily. I by no means belittle the value of proper illustrations; but the value of the space in scientific periodicals and the cost of reproduction necessarily limit their use to the most essential.

Following the receipt of this communication a contributor's article was returned with the request that he develop his summaries and conclusions in the light of this criticism. He, in turn, offered an excellent suggestion:

> I have thought for some time of a scheme somewhat as follows: At the end of every article the author could write what amounts to an abstract and I believe it could well be titled "Abstract." This would enable the *Zentralblatt* or any other abstracting journal to utilize the author's own summary of his work and ideas. As I have read original articles and the abstracts in various journals, it has been evident that the author's ideas are often misinterpreted and important factors of the work are often not mentioned. Some abstractors insist on adding their own opinion

of the work, often biased by personal prejudice and linguistic difficulties so that an abstract often does not have the value which it might.

I would like nothing better than to see the Editor propose that Dermatologists write a brief inclusive abstract of their own articles to be placed at the end of the article. I have never done this in my own work because I did not want to be accused of unnecessary padding.

It is probable that authors could furnish good concise abstracts which would be an improvement on the summaries now submitted. If authors will make a serious effort to furnish such abstracts, they will be published as such at the end of the article. W. A. P.

News and Comment

SIR NORMAN WALKER ELECTED PRESIDENT OF BRITISH COUNCIL

Sir Norman Walker, Professor of Dermatology at Edinburgh, was elected president of the General Medical Council of Great Britain at its meeting in London, recently, succeeding Sir Donald MacAlister, whose health has been impaired by a long illness. Sir Norman has served as direct represensative on the council for Scotland since 1907. He was president of the Royal College of Physicians of Edinburgh from 1929 until Dec. 3, 1931, when Dr. Robert Thin was elected to succeed him. In connection with his work for the council he has visited India, Canada and the United States. In 1928 he was the guest of the Council on Medical Education and Hospitals of the American Medical Association at the annual congress. Sir Donald MacAlister has been president of the Council since 1904, but had been a member since 1889, a total service of forty-two years.

Abstracts from Current Literature

EDITED BY DR. HERBERT RATTNER

ENDEMIC PURPURIC MENINGOCOCCUS BACTEREMIA IN EARLY LIFE; THE DIAGNOSTIC VALUE OF SMEARS FROM THE PURPURIC LESIONS. STAFFORD McLEAN and JOHN CAFFEY, Am. J. Dis. Child. **42**:1053 (Nov.) 1931.

Eleven per cent of a series of cases with meningococcal infections have presented purpuric eruptions. Thirty-two cases of endemic meningococcal bacteremia with purpura are reported, and in eighteen of them smears from the lesions were examined for meningococci. In fifteen of these cases (83 per cent) such an examination gave positive results. In four, or 12.5 per cent, of the series no inflammatory changes were present in the cerebrospinal fluid.

The technic of examining purpuric skin lesions is as follows: The skin surface over the cutaneous lesion is cleansed with alcohol and permitted to dry, and then a small stab wound is made with a Hagedorn needle. After the skin puncture, the extravasated blood and tissue juices from the lesion are smeared onto a slide or cover glass, dried in the air and stained by Gram's method. Microscopic examination is then done with the oil immersion lens, and search is made until typical intracellular organisms are identified.

Blood cultures taken simultaneously with smears of the skin lesions were positive in ten of sixteen cases, while the smear was positive in thirteen instances.

ANDERSON, Los Angeles.

THE SPLEEN IN MEASLES. E. FRIEDMAN, Am. J. Dis. Child. **42**:1114 (Nov.) 1931.

During an epidemic of measles in the first half of 1930, 13, or 10.8 per cent, of 119 children presented enlargement of the spleen. This enlargement was very slight in most of the cases and great only in 4. Neither the frequency nor the degree of splenic enlargement bore any relationship to the severity of the infection or to the supervention of complications.

AUTHOR'S SUMMARY.

PURPURA HEMORRHAGICA. A. M. LITVAK and T. G. HOLZSAGER, Am. J. Dis. Child. **42**:1160 (Nov.) 1931.

A fatal case of idiopathic purpura hemorrhagica, which at autopsy presented hemorrhages into the bone marrow, spleen, skin and stomach, is presented. There was a coincident tuberculous lymphadenitis of the mediastinal lymph nodes (probably healed). A negative reaction to 5 mg. of tuberculin was present during life, in addition to a marked leukopenia. A streptococcus septicemia was terminal.

ANDERSON, Los Angeles.

THE DIAGNOSTIC PROGRAM IN FOOD ALLERGY. WARREN T. VAUGHAN, Am. J. M. Sc. **182**:459 (Oct.) 1931.

Here is presented a rational method for the discovery of the offending food in allergic states.

Vaughan discusses in detail the question of history, skin tests, dietary and trial diets. He also gives his biologic groupings of common vegetable foods and a base list of foods which he uses in the formulation of his trial diets.

R. C. JAMIESON, Detroit.

INFECTION OF MONKEYS WITH GRANULOMA INGUINALE. W. A. DEMONBREUN and E. W. GOODPASTURE, Am. J. Trop. Med. **11**:311, 1931.

Three Macacus rhesus monkeys inoculated with Donovan organisms from a case of granuloma inguinale showed evidence of an abortive infection with this agent. A biologic method is thus afforded for testing any micro-organism that might be cultivated from these lesions and suspected of being the etiologic agent.

AUTHORS' SUMMARY.

I. GOLDSTEIN'S HEREDOFAMILIAL ANGIOMATOSIS WITH RECURRING FAMILIAL HEMORRHAGES (RENDU-OSLER-WEBER'S DISEASE). H. I. GOLDSTEIN, Arch. Int. Med. **48**:836 (Nov.) 1931.

Goldstein reviews the reported cases of this disease, having found from 90 to 95 families and from 500 to 550 persons so afflicted. Heredity, hemorrhage and telangiectasia are recognized as the cardinal diagnostic points. The condition may occur in both sexes and is transmitted by either, atavism being a factor in the heredity. Symptomatic treatment is the only form of therapy.

THE INFLUENCE OF SOLAR RAYS ON METABOLISM, WITH SPECIAL REFERENCE TO SULPHUR AND TO PELLAGRA IN SOUTHERN UNITED STATES. J. H. SMITH, Arch. Int. Med. **48**:907 (Nov.) 1931.

This is a lengthy monograph on the subject and contains a mass of data and information which does not lend itself well to abstracting.

The author concludes, in brief, that there is no doubt that biologic effects are due to radiant energy; some of these effects are related to pellagra.

An adequate supply of sulphur with a normal metabolism appears to exert a protective influence against solar rays, thereby becoming a factor in the prevention of pellagra. From the evidence presented it would seem that an inadequate supply of sulphur as cystine is an important etiologic factor in pellagra, together with solar irradiation, the effect of the latter being determined by the state of the general nutrition.

R. C. JAMIESON, Detroit.

CONGENITAL ECTODERMOSES (NEUROCUTANEOUS SYNDROMES) IN EPILEPTIC PATIENTS. PAUL I. YAKOVLEV and RILEY H. GUTHRIE, Arch. Neurol. & Psychiat. **26**:1145 (Dec.) 1931.

The authors discuss congenital malformations which affect the ectodermal structures and which in many instances are associated with mental defects and epilepsy. Three types are considered: (1) Recklinghausen's neurofibromatosis, (2) Bourneville's tuberous sclerosis and (3) angiomatosis of the brain with nevi of the skin in the trigeminal area. Records of fourteen cases which illustrate the association of these syndromes with mental defect and epilepsy are analyzed. The study indicates that all three syndromes exhibit a remarkable parallelism in their clinical and pathologic manifestations; they are all the result of congenital maldevelopment bearing electively on the organs of ectodermal derivation — the nervous system, eyeball, retina and skin. This is evident from the tendency of these lesions to a metameric distribution in the skin and in the nervous system. The distribution of vascular nevi, however, seems to correspond with areas of sympathetic innervation rather than with true metameres, which suggests that such nevi may have their origin in some developmental defect of vasomotor innervation. Pigmented nevi are considered neuromas of the nerve-endings. In the port-wine nevi, mesodermal hyperplasia overshadows the ectodermal malformation, on the background of which the telangiectasia develops. There is also an indication of a relationship of lesions in these syndromes to the process of folding and of differentiation of embryonal sheets and to the primitive neural tubes because of the topographic predilection of the clinical and pathologic manifestations to the cephalic and caudal ends of the body. The three syndromes overlap each other in their

clinical and pathologic manifestations; they have a common origin in a malformation of the ectoblast, and clinically and pathologically can be included in one group under the term of congenital ectodermoses. They differ in the period of disturbance of embryogenesis, in the predominance of one or the other of the ectodermal structures involved and in the degree of participation of mesodermal elements. The clinical and pathologic manifestations of the three syndromes are adequately described. The group of patients with Recklinghausen's disease had such manifestations as pigmented nevi, polypi, warts, "café au lait" spots, anemic nevi, vascular nevi, etc. Bourneville's tuberous sclerosis presents a triad of symptoms: (1) mental defects (the patients are usually idiots or low grade imbeciles), (2) epileptic seizures, and (3) adenoma sebaceum, often with nevi on other areas of the body. In the cases described, the authors repeatedly bring out points of similarity in even the clinical manifestations of the three syndromes, all of which are well illustrated. The article is a long one and should be read, as it does not lend itself to abstracting.

RATTNER, Chicago.

PELLAGRA. THOMAS R. BOGGS and PAUL PADGET, Bull. Johns Hopkins Hosp. **50**:21 (Jan.) 1932.

This article is an excellent analysis of 102 cases of pellagra. The authors classify pellagra as: (1) a simple type, of which there were 31 cases; (2) a post-alcoholic type, of which there were 40 cases, and (3) a variety arising as a complication of some other preceding disease. In the last group there were 31 cases.

Changes of the skin were present in 100 per cent of all the cases, though they were complained of in only about 44 per cent. There were the characteristic lesions on the hands, and in some chronic cases there was a peculiar roughening of the skin over the knuckles. Other cutaneous lesions similar to those on the hands occur on the nose, chin, malar eminences and forehead. Less frequently, the elbows, forearms, knees, shins and dorsa of the feet are involved. Perineal and vulvar lesions occur only in the more severe cases.

About 90 per cent of the cases in which a gastric analysis was made showed an absence of free hydrochloric acid. Since 1928, a liver diet has been employed, with considerable success. A dry treatment of the lesions of the skin is advocated.

ANDERSON, Los Angeles.

THE COMPARATIVE VALUE OF THE ARSPHENAMINES IN THE TREATMENT OF EARLY SYPHILIS. A. BENSON CANNON and MARIE B. KARELITZ, J. A. M. A. **97**:1523 (Nov. 21) 1931.

A statistical analysis of 436 case records indicates that arsphenamine is superior to neoarsphenamine or silver arsphenamine, because it requires fewer injections, a smaller amount of the drug and a shorter period to produce a negative Wassermann reaction, it produces fewer reactions, and the percentage of relapses is appreciably lower. In the few cases in which silver arsphenamine was used, it was found to be superior to neoarsphenamine.

TREATMENT OF CANCER OF THE LIP BY ELECTROCOAGULATION AND IRRADIATION. G. E. PFAHLER and J. H. VASTINE, J. A. M. A. **98**:32 (Jan. 2) 1932.

In early cases, without involvement of the lymph nodes, the authors use a fine needle with the high frequency current and surround the lesion with a line of local destruction, after which they remove a specimen for microscopic examination, and then destroy the entire lesion. They then irradiate the lip and chin, and on the following day the submental and submaxillary regions, within a week bringing the treatment up to a full erythema dose according to the "saturation (Pfahler) technic." When lymph nodes are palpable, they use radium packs over the lymphatics, and at times insert radium needles into the lymph nodes. The combination treatment, they feel, has been more satisfactory than roentgen treat-

ment alone. A study of 253 case records showed recovery in 95.5 per cent of all primary cases, even when there were palpable lymph nodes, and in 71 per cent of the recurrent cases; in all types of cases, including recurrent and metastatic cases, 85.5 per cent of the patients have been cured. The authors attach a great deal of importance to smoking as an etiologic agent.

RATTNER, Chicago.

THE PRECIPITATION TEST FOR SYPHILIS: INFLUENCE OF THE DILUENTS OF THE ANTIGEN ON THE INTENSITY OF THE FLOCCULATION. EMIL WEISS, J. Infect. Dis. **49**:436 (Nov.) 1931.

The author investigated the possibility of replacing the saline in Kahn's test. He found that it could be successfully replaced by any one of a number of salts and acids. Salts formed by the combination of sodium and potassium with strong acids appear satisfactory. Among the acids, sulphosalicylic acids and phenol are most suitable. The property of precipitating proteins is not essential to the flocculation of syphilitic serum. Hydrogen ion concentration, constitution, valence and molecular weight have apparently no direct bearing on the results. In Kahn's procedure the shaking of the mixture of antigen and serum is absolutely required; only a strongly positive serum gives flocculation without being shaken for from two to three minutes. All of the chemicals that could be substituted for saline successfully gave flocculation without being shaken for two minutes. This removes an inconvenient factor from Kahn's procedure. By the use of less antigen, thus decreasing the turbidity of the mixture of antigen and serum, the reading of results is simplified.

THE UTILITY OF PHENYL-MERCURY-NITRATE AS A DISINFECTANT. L. A. WEED and E. E. ECKER, J. Infect. Dis. **49**:449 (Nov.) 1931.

The authors report a study on the use of phenyl-mercury-nitrate as a disinfectant; this compound was first prepared by Otto in 1870, but its biologic characteristics have not been studied until now. They found that high dilutions of an aqueous solution of phenyl-mercury-nitrate exert a strong disinfecting and antiseptic power on bacteria and molds. The bactericidal power of a solution of phenyl-mercury-nitrate is not in the nature of a selective action and is not inhibited in the presence of tissues (peritoneum and skin) or urine. An aqueous solution of phenyl-mercury-nitrate may be given in large doses orally, intravenously or intraperitoneally, with no serious effects. This substance is a powerful, safe and practical disinfectant for general and specific uses, since it has no odor, color, taste or corroding capacities and does not stain.

HERPETIC VIRUS IN MICE: PATHOGENICITY, IMMUNITY AND SUSCEPTIBILITY OF THE HOST. H. B. ANDERVONT, J. Infect. Dis. **49**:507 (Dec.) 1931.

The author has found mice useful for studying filtrable viruses, and gives an account of his experiments with the inoculation of herpetic virus into such animals. He employed two strains of the virus, the JB and Levaditi. There was no perceptible change in the pathogenicity of the virus for rabbits after the JB strain had been passed forty times and the Levaditi one hundred and twenty-one times through the brains of mice. JB virus is more virulent for mice than the Levaditi strain, as judged by cutaneous inoculation. Evidence is presented that indicates that mice exhibit a seasonal variation in susceptibility of the skin to inoculation with either virus. In some mice a marked change in local reaction after the cutaneous inoculation of JB virus also occurs in conjunction with this seasonal variation in susceptibility. The JB virus is present at the site of cutaneous inoculation throughout the course of the infection. When nitric acid and formaldehyde are applied to the infected skin, the JB virus is destroyed. The application of nitric acid and formaldehyde to the site of cutaneous inoculation shows that the JB virus leaves the skin within from twenty-four to forty-eight hours after its

introduction. Mice thus protected are not immune to subsequent cutaneous or intracranial inoculation of JB virus.

At least three days must elapse between successful caudal inoculation of the JB virus and the amputation of the tail before the mouse is rendered immune to herpetic virus. Mice can also be immunized by intraperitoneal injections of formaldehydized suspensions of brain infected with JB virus. Tests for the presence of living virus in such formaldehydized suspensions show that living virus is present in those suspensions capable of immunizing mice. Feeding acid or thyroid gland extract increases the susceptibility of mice to cutaneous or intraperitoneal inoculation of JB virus.

CORNBLEET, Chicago.

LEPROSY IN THE PHILIPPINE ISLANDS. G. F. LULL, Mil. Surgeon **70**:138 (Feb.) 1932.

This is an interesting summary of the work done in the Philippine Islands during the past twenty years since modern methods of segregation and treatment have been in force. In 1931, there were 7,000 lepers in segregation, and it is estimated that there are several thousand more still at large who are receiving no treatment. The colony of Culion, the principal center of segregation, has about 5,000 inhabitants who live as nearly as possible in the same way as they do in their home villages, many of them with their own homes and businesses. The large hospital for the care of patients is organized into medical, pathologic and chemical sections, and is adequately manned by fourteen physicians, a dental surgeon, a pharmacist, etc. Most of the nursing is done by lepers who have been specially trained. Outside of Culion, there have been established stations where treatment is given and dispensaries for diseases of the skin, with the result that many cases of leprosy are detected in the early stages, and often the patients are treated without segregation. Treatment with iodized ethyl esters of chaulmoogra oil is favored, and has given encouraging results. "Negative" patients are paroled, and after two years may be discharged, with the provision that periodic medical examinations are made, for relapses do occur. Culion has released 2,448 lepers, 430 as cured, the remainder on parole. The death rate in the colony is between 55 and 60 per thousand leper population per annum, and of these tuberculosis takes the greatest toll, 28 per thousand, and leprosy, per se, 2.5 per thousand.

RATTNER, Chicago.

THE PRESENT STATUS OF GOLD THERAPY. HARVEY P. TOWLE, New England J. Med. **204**:487 (March 5) 1931.

The author has reviewed 451 cases of dermatologic conditions during the past five years in which treatment with gold preparations has been given, 319 cases being reported in the American literature and 101 in foreign journals. About 90 per cent of the cases of lupus erythematosus are favorably influenced. Two cases of recurrence during treatment were reported, but hardly enough time has elapsed to show definite figures on recurrences, though they are not uncommon. In 266 American cases, there were reports of reactions ranging from mild to severe in 14 per cent. Two fatal cases from reactions and 3 cases of permanent blindness have been reported. The gold sodium thiosulphate used almost invariably in this country has a smaller gold content, but its toxicity as tested on white rats is distinctly less. Experience indicates a beginning dose of 0.025 Gm., and a preliminary examination of the blood, with reference to white count, high blood sugar and chloride, is also suggested.

HINTON, KAHN AND WASSERMANN REACTIONS IN DIABETES. H. F. ROOT and G. O. STUART, New England J. Med. **204**:1179 (June 4) 1931.

Tests were carried out with these three serums on more than 1,000 specimens of the blood of diabetic patients. These tests were made especially to ascertain

whether variations in the chemical composition of the blood would affect the reactions in producing false results.

Disagreement in the three tests occurred in 59 cases. The largest number of doubtful tests was obtained with the Kahn method, and the smallest with the Hinton reaction.

Variations in the sugar and cholesterol of the blood, acidosis and albuminuria could not be shown definitely to produce false positive reactions in any test.

BLASTOMYCOSIS. REPORT OF A CASE. JOHN GODWIN DOWNING, New England J. Med. **204**:1259 (June 11) 1931.

A case of blastomycosis is reported in which the diagnosis was confirmed by biopsy and culture. The lesions were very resistant to treatment. This is one of the few cases that have been reported from New England.

ANABOLIC NUTRITION (A CONSIDERATION OF THE NUTRIENT SUBSTANCES ASSIMILATED BY CELLS). FRANCIS LOWELL BURNETT, New England J. Med. **205**:251 (July 30) 1931.

Burnett shows pictures of five cases of psoriasis before and after treatment by his method. These cases have all cleared up after the regimen which he outlined in previous papers was consistently followed.

SYPHILIS OF THE STOMACH. JAMES C. MCCANN and JOHN J. DUMPHY, New England J. Med. **205**:1273 (Dec. 31) 1931.

A case of syphilis of the stomach is reported in which operation was necessary in spite of vigorous antisyphilitic treatment. Changes characteristic of syphilis were found in the specimen removed at operation. The Wassermann reaction has been persistently positive in spite of continued antisyphilitic treatment. There is a discussion of the frequency and surgical treatment of this manifestation of syphilis.

LANE, Boston.

FUNGOUS INFECTIONS OF THE FEET; OBSERVATION OF THEIR INCIDENCE IN A SCHOOL IN NEW YORK CITY. G. C. ANDREWS and F. W. BIRKMAN, New York State J. Med. **31**:1029 (Aug. 15) 1931.

Recent reports of the increasing incidence of fungus infections of the feet were briefly reviewed and compared with similar studies on students in New York, both public school and university. In a total number of 520 examinations, clinical signs of fungus disease were found in 65, or 12.5 per cent. Fifty boys were examined; 44 were found to be clinically negative, and the remaining 6 clinically positive. Of the latter, the results of the cultures were: 1. In 1 case a growth of Trichophyton gypseum was obtained in a nail culture and in a cutaneous culture, the other cultures from the skin and the nails failing to grow this organism. 2. One case presented a growth of Trichophyton gypseum in a skin culture. The other skin tubes and all the nail tubes failed to develop the organism. 3. The cultures in 2 cases developed growth of Moniliae, one from the epidermis alone, the other from both the epidermis and the nail. 4. The cultures in 2 cases presented growths of cryptococci, the one from the skin alone, the other from both the skin and the toe-nail.

Cultures in the 44 cases in which the feet showed no definite signs of fungus involvement resulted as follows: 1. One growth of Trichophyton gypseum occurred in a skin culture. The remaining skin tubes and nail tubes failed to grow this organism. 2. Moniliae appeared in 7 cases from toe-nail cultures and in 2 cases from skin cultures. 3. Cryptococci grew in 5 cases in the cultures of both the skin and toe-nail, in 10 cases in the cultures of the toe-nail alone and in 4 cases in the cultures from the skin alone.

LUPUS VULGARIS OF THE NOSE AND UPPER RESPIRATORY TRACT, TREATMENT WITH RADIUM. E. MARTIN FREUND, New York State J. Med. **31**:1273 (Oct. 15) 1931.

The incidence, etiology, paths of invasion and more common varieties of this disease are reviewed, and a case is reported in detail. The patient received a number of radium treatments followed by a partial plastic operation to reshape her nostrils. In the author's opinion, radium therapy was by far the most efficient treatment, particularly in regions inaccessible to surgical intervention and roentgen exposure.

THE INJECTION TREATMENT OF VARICOSE VEINS. ARTHUR M. DICKINSON, New York State J. Med. **31**:1389 (Nov. 15) 1931.

Indications and contraindications for injections into varicose veins are discussed. The method is compared to the operative removal of the veins, in which hospitalization for an average of fifteen days and no work for an average of thirty-five days are required. The mortality rate determined by a series of 6,771 operative cases and 53,000 cases in which injection therapy was used is seventy times higher in the former. The Trendelenburg and Perthes tests are described. Sodium salicylate in 30, 40 and 50 per cent solutions was preferred to other solutions. The technic of the injection method is described in detail.

THE TREATMENT OF DERMATOPHYTOSIS. PAUL E. BECHET, New York State J. Med. **31**:1456 (Dec. 1) 1931.

The chemotherapy of dermatophytosis of the hands and feet is briefly reviewed, and the fact that no specific remedy exists is pointed out. Roentgen therapy, it would seem, was more useful in treatment for complications, such as an added eczematoid dermatitis, than in treatment for the tinea itself. Vaccinotherapy was also thought to be of little value therapeutically. Prolonged treatment with salicylic acid as the keratolytic of choice, followed by parasiticides such as thymol, potassium permanganate, chrysarobin, mercurochrome (220 soluble) and iodine, preferably in solution, was the author's favorite armamentarium.

TRAUB, New York.

A CASE OF GENERALIZED ACRODERMATITIS CONTINUA VEL PERSTANS. J. F. CHRISTIE and T. E. ANDERSON, Brit. J. Dermat. **43**:234 (May) 1931.

A case is reported in a woman, aged 30, who five years previous to examination injured her right thumbnail, with subsequent development of a typical dermatitis repens. Three years later, during her first pregnancy, pustules on a "red ground" appeared on the abdomen. This condition healed after parturition, but a relapse occurred after the birth of a second child, and the condition persisted. Lesions were present on all of the fingers, both breasts and the abdomen, especially around the umbilicus, with scattered lesions on the upper part of the right arm, the pubes, the vulva and contiguous areas of the thighs. Bony changes were noted in the terminal phalanges of the fingers, and a rich growth of Staphylococcus pyogenes-aureus was obtained in a culture of pus from lesions of the finger and abdomen. Culture of the blood gave negative results. Varied treatment directed against a bacterial invasion of the skin was employed with success in the case reported. Two photographs of the clinical lesions, a roentgenogram of the bones of the hands and two photomicrographs showing the histologic condition of the skin are presented.

AN INQUIRY INTO THE CAUSES OF INFANTILE ECZEMA AND THE RELATION OF BESNIER'S PRURIGO TO THIS CONDITION. GODFREY W. BAMBER, Brit. J. Dermat. **43**:279 (June) 1931.

This paper gives the results of an inquiry undertaken to see how far current ideas and assumptions about the origin of infantile facial eczema and Besnier's

prurigo (flexural pruritus, eczema flexuarum and neurodermatitis) could be substantiated by an investigation of the personal and family history of children so affected. The author presents the results of his investigations in three tables, and discusses the points in his inquiry relating to infantile facial eczema in detail under the subheadings: evolution, causation, diet, endocrine imbalance, allergy and treatment. On the basis of his inquiry, he draws the following conclusions: 1. The high incidence of facial eczema in male infants (3:1) is considered to be against an external factor being the chief cause. 2. The initial lesion is either an erythemato-urticarial reaction or a primary pruritus. 3. Fat babies are more likely to be affected. 4. The onset and exacerbations are often associated with gastro-intestinal disturbances and asthma. 5. A family history of an allergic manifestation is not uncommon. 6. Some constitutional peculiarity of the infant is probably the most important factor determining the development of the eczema. 7. Of external factors, cold weather and variations in temperature are the most important. Infection of the skin is neither constant nor necessary. 8. Besnier's prurigo is preceded, immediately or more remotely, by infantile facial eczema in more than half of the cases examined. Transitions from one to the other are seen. 9. The infantile and the family history of the children with Besnier's prurigo are similar to those of eczematous infants. The same constitutional peculiarity probably underlies both.

THE RELATION OF SUGAR INTOLERANCE TO CERTAIN DISEASES OF THE SKIN. G. GORDON CAMPBELL, Brit. J. Dermat. **43**:297 (June) 1931.

An analysis of 132 cases of various diseases of the skin in which a determination of sugar tolerance was made is presented with the idea that intolerance to sugar might have a wider application in the etiology of diseases of the skin. The results of the tests are presented in a table. Acne, seborrheic dermatitis, acne rosacea, dermatitis in various locations, furunculosis, ulcer of the leg, mycosis fungoides, epidermophytosis and perionychium are among some of the entities presented in the author's table.

Campbell feels that an abnormal percentage of sugar in the blood appears to be only a contributing cause, possibly by lowering the resistance of the skin to irritants. Dieting alone does not often result in the cure of the disease; local treatment must be combined with it. Most of the reported cases of dermatitis developed after middle life in persons who had not altered their habits of living, and who were attacked mainly on the exposed parts of the body. It seems reasonable to conclude that the common and, generally, innocuous irritants of everyday life, such as soap, water and dirt, are able to produce dermatitis in a person with lessened resistance. When the blood sugar has been reduced below the danger point by restrictions of diet, the skin regains its power of withstanding slight irritants.

WIEN, Chicago.

ONYCHIA AS AN OCCUPATIONAL DISEASE. H. HALDIN-DAVIS, Brit. M. J. **2**:845 (Nov. 7) 1931.

In the author's opinion, chronic onychia as an occupational disease has not received sufficient attention. He refers to onychia that occurs independently of dermatitis of the hands — the type in which the base of the nail is thickened into a dull red, sausage-shaped roll encircling the nail and gradually tapering off as it approaches the distal end. The nail plate after a time becomes wrinkled and may be deformed. Most of these cases are caused by occupations that necessitate frequent immersion of the fingers in water, especially when soda is used in the water. Similar changes in nails, though to a lesser degree, are sometimes seen as the result of manicuring when the orange stick is used with excessive vigor. The cases referred to are aside from those that occur in specialized industries, such as those among persons who work in calcium chloride, and if looked for will be found much more frequently than is indicated by the literature.

HERPES ZOSTER AND ENCEPHALITIS. A. G. MACGILLIVRAY, Brit. M. J. **2**:895 (Nov. 14) 1931.

This is a case report in which ophthalmic herpes zoster was followed by hemiplegia on the same side.

LICHEN URTICATUS. HERBERT D. CHELKE, Brit. M. J. **1**:7 (Jan. 2) 1932.

This article is essentially a clinical description of lichen urticatus and its differential diagnosis from smallpox, chicken-pox, scabies and vaccinal lichen. The author has charge of a station in which patients with smallpox are treated, and several cases of lichen urticatus have been sent to him erroneously diagnosed smallpox; hence the article.

THALLIUM ACETATE IN THE TREATMENT OF RINGWORM OF THE SCALP. JOHN T. INGRAM, Brit. M. J. **1**:9 (Jan. 2) 1932.

In this paper, the author discusses the relative values of thallium acetate and the roentgen rays in the treatment for tinea capitis, and concludes, from a study of the literature, that the dermatologists with the greatest experience in the use of thallium are favorably disposed toward its use, while those who condemn it do so from a limited acquaintance. He has treated 101 patients with thallium acetate, 94 successfully, and feels that the more the drug is used, the less apparent is the danger. Thallium is a heavy metal with toxic properties and, of course, cannot be used indiscriminately. Instances of death following the use of the drug have all been from accidental overdosage or from repeated large doses. Toxic reactions are usually unimportant, and even when very severe, the patient always recovers. There is no serious evidence in the literature to support the suggestion that the treatment may do permanent damage to the growing organism. Ingram's procedure is to weigh the child naked, and the weight in pounds multiplied by 4 gives the required dose of thallium acetate in milligrams. If the dose is under 200 mg., the patient may be treated as an ordinary outpatient; if the dose is between 200 and 250 mg., the child should be kept under observation, and if between 250 and 300 mg., the patient must be treated in bed. More than 300 mg. of the drug is never administered. In the event that treatment must be repeated, there should elapse an interval of not less than three months. Locally, every day from the onset of treatment, the entire scalp is painted three times a day with 2 per cent tincture of iodine, and the scalp is not to be washed during the first two weeks. Ingram has found this procedure perfectly safe, and the results have been satisfactory.

HERPES ZOSTER WITH FACIAL PARALYSIS. G. H. H. BROTH, Brit. M. J. **1**:15 (Jan. 2) 1932.

This is a report of a case of herpes zoster back of the ear, complicated by complete facial paralysis on the same side. The facial nerve sends a posterior auricular branch behind the ear, but this has not been proved to contain sensory fibers. The sensory distribution for this area comes from cervical nerves. Chicken-pox developed in two children in the household two weeks later.

RATTNER, Chicago.

RAYNAUD'S DISEASES: WITH SPECIAL REFERENCE TO ARTERIOLAR DEFECTS AND TO SCLERODERMA. THOMAS LEWIS and E. M. LANDIS, Heart **15**:329, 1931.

There is a form of diffuse scleroderma in which those portions of the skin that are exposed are most affected; sclerodactylia and discoloration of the fingers on exposure to cold are the rule. The vascular defect underlying discoloration of the fingers in this disease is of the same nature as that occurring in Raynaud's

disease of the usual type. Evidence is collected, which shows that in cases of severe Raynaud's disease (with or without diffuse scleroderma) the vessels to the fingers are altered structurally. The circulatory manifestations of Raynaud's disease are due to a local vascular defect. In milder forms this defect is expressed as a susceptibility to enter a state of spasm; in the severer forms, spasm is reinforced by local structural change. AUTHORS' SUMMARY [ARCH. PATH.].

ON THE CHEMICAL NATURE OF THE "PELLAGRA TOXIN" AND THE DISCOVERY OF THE THIOSULPHATE TREATMENT OF PELLAGRA. I. SABRY, J. Trop. Med. **34**:303 (Sept.) 1931.

The ideas formulated in this article are founded on Bloch's work in which he elaborated his "dopa" reaction.

Sabry states as his belief that the toxin of pellagra is causally related to the hyperpigmentation found in these cases, or as he expresses it: dioxyphenylalanine + dopa oxydase = melanin. Pellagra toxin + dopa oxydase = melanin; therefore, pellagra toxin = dioxyphenylalanine.

In the treatment for pellagra, he selected sodium thiosulphate for reasons that are elaborated in detail. He also disagrees with the vitamin theory of the etiology of pellagra, but he believes that the pellagra toxin can exist in maize; that it is of a chemical nature, and that it also occurs in beans.

This theory of a chemical pellagra toxin he has christened the "dopa theory." He considers the parasitic theory of the etiology of pellagra also reconcilable with his views, in that an organism may convert a product into dioxyphenylalanine.

The treatment consists of from twenty to sixty daily intravenous injections of 10 cc. of a 10 per cent solution of sodium thiosulphate.

The lesions of the skin, in early cases are stated to disappear after a few injections; the diarrhea and gastric symptoms cease. In advanced cases, improvement in symptoms occurs, but not to the extent of that in early cases.

R. C. JAMIESON, Detroit.

THE ACTION OF THE HERPES ZOSTER VIRUS IN ITS MORE UNUSUAL MANIFESTATIONS. FRANCIS E. BROWNE, M. J. Australia **2**:621 (Nov. 14) 1931.

Four cases are briefly reported in which the patients all had herpes zoster, were seen at about the same time, but had not come in contact with each other. The first patient had in addition to intercostal herpes zoster indications of an involvement of the oculomotor nerve, causing a partial paresis, and a sensory manifestation involving the upper eyelid. The second patient had no zoster rash, but there was involvement of the left facial nerve, the chorda tympani and the geniculate ganglion — the zoster syndrome of the geniculate ganglion. The author thinks that here the involvement of the facial nerve might be due to ganglionitis with swelling and pressure on the adjacent facial nerve fibers. The third patient also had involvement of a motor nerve and a rash involving a cerebral nerve distribution, and the last patient had a thoracic herpes zoster with no motor nerve involvement. The cases are of interest in that they demonstrate the diversity of manifestations of the action of the zoster virus, and establish a so-called zoster syndrome involving motor nerves.

RATTNER, Chicago.

STREPTOCOCCI AND ENTEROCOCCI IN THE PARAKERATOSES. L. LORTAT-JACOB and C. BIDAULT, Ann. de dermat. et syph. **2**:842 (Aug.) 1931.

The authors undertook a study of the etiologic rôle played by the streptococcus in the conditions grouped under the term "parakeratoses" by the French (eczematides psoriasiformes, parakeratoses psoriasiformes of Brocq and eczematides of the type of pityriasis rosea of Gibert). Various strains of streptococci were isolated from the skin lesions of forty-five subjects. Forty-eight hour broth cultures were used for animal tests. Some of the organisms showed a high

virulence, producing an abscess in the eye of the rabbit, and septicemia followed by death in the rat. Others had less marked effects, while still others proved totally innocuous for the animals. It was observed that there was no constant parallel between the virulence of the organism and its production of a hemolysin. The patients were tested intradermally with killed cultures of the germs, and it was found that there was no relation between virulence for the animal and for the patient, as measured by the allergic skin reaction in the latter.

Bacteriologic studies revealed striking similarities between these streptococci and the enterococci (about which the French have lately written so much), and the question is raised as to whether the enterococcus may not be simply an aberrant streptococcic form. If, indeed, it has been proved that the enterococcus is something besides a modified streptococcus on the skin, it remains to define its rôle in the parakeratoses of adults. The authors believe that in certain cases, at least, it may be pathogenic.

A Case of Cutaneous Blastomycosis with Multiple Foci. G. Hufschmitt, A. Sartory, R. Sartory and J. Meyer, Ann. de dermat. et syph. **2**:850 (Aug.) 1931.

A case of cutaneous blastomycosis was thoroughly worked up from the clinical, histologic and particularly the bacteriologic standpoints. Syphilis, tuberculosis and leprosy were all ruled out by appropriate studies. The chief justification for this report is the isolation of what the authors allege is a new species of organism, designated by them, Debaryomyces mucosus. The article is accompanied by several excellent illustrations on the bacteriologic phase and a good bibliography.

A Special Form of Lupus Annulare, with a Perifollicular Histologic Structure. Jean Pierard, Ann. de dermat. et syph. **2**:877 (Aug.) 1931.

The author reports a case of undoubted tuberculosis of the skin, apparently a transition form between lupus vulgaris and certain tuberculids, but difficult to classify.

The patient was a lad of 6 years, and the lesion, situated in the right temporal region just above the zygomatic arch, was of nine months' duration. It consisted of a coin-sized ring of papular elements covered with fine pearly scales, the lesion as a whole showing peripheral extension and central involution with scar formation. The clinical resemblance to epithelioma was marked. But removal of the scales revealed a reddish, irregular, papular border which exhibited translucent apple jelly nodules under pressure of the diascope. The microscopic picture was definitely that of lupus vulgaris, the striking feature being the disposition of the infiltrate about the pilosebaceous structures.

The differential diagnosis is discussed, both clinically and histologically, between the various forms of tuberculosis one would have to consider in this case, such as circinate lupus erythematosus, Boeck's sarcoid, lichen scrofulosorum and papulonecrotic tuberculids, with the conclusion that it best fits into the category of Brocq's "lupus annulare," representing, however, a peculiar variety of this condition by reason of the perifollicular arrangement of the tuberculous infiltrate.

Fox-Fordyce Disease. S. Neumark, Ann. de dermat. et syph. **2**:929 (Sept.) 1931.

This is an excellent study of Fox-Fordyce disease from the clinical, pathologic and etiologic standpoints, based on three cases which the author records in some detail. From an analysis of these cases, together with an examination of other reports in the literature, he submits as his belief that Fox-Fordyce disease is due to endocrine dysfunction, in which the gonads (especially ovaries), thyroid and suprarenals all play a rôle. The essential fact in the histologic picture is a thickening of the sweat ducts and the cellular infiltrate hugging them closely. While

mechanical, infectious or toxic factors (such as scratching, furunculosis or constipation) may contribute to the creation of a special predisposition in the affected regions, the basic pathogenic fact is a functional disturbance of the apocrine glands brought about, in turn, this author believes, by a functional disturbance in the endocrine system.

THE SPIROCHETE IN THE SATELLITE ADENOPATHIES OF TABETIC ARTHROPATHIES. M. FAVRE-BEAULIEU and MELLE C. BRUN, Ann. de dermat. et syph. **2**:1049 (Oct.) 1931.

Having previously reported two cases, the authors report a third case of tabes with changes in the joints in which they demonstrated the presence of Spirochaeta pallida in histologic sections of the satellite glands. In addition, the histologic changes were those of syphilis. They contend that these new facts upset the long established idea, which has prevailed since the time of Charcot, that the osteo-arthropathies associated with tabes are trophoneuroses.

THALLIUM ACETATE IN THE TREATMENT FOR RINGWORM. A. MARTINS DE CASTRO, Ann. de dermat. et syph. **2**:1056 (Oct.) 1931.

An experience with fourteen cases of ringworm and favus in which thallium acetate was employed to produce alopecia of the scalp convinces the author that the prejudice that has grown up against the use of this drug, owing to the many reported toxic reactions of one kind or another, is not justified. By using it only before puberty, in proper dosage (8 mg. per kilogram of body weight), and carefully examining the patient before to make sure that all organs were sound, he found the reactions to be of small moment, and obtained perfect therapeutic results. In areas which are inaccessible to the roentgen rays, or when the patient is too young, thallium should be employed.

PIGMENTARY DERMATOSIS OF THE LEGS (SCHAMBERG?) AND TUBERCULOUS HEMANGIECTASIA. L. LABRO, Ann. de dermat. et syph. **2**:1104 (Oct.) 1931.

A woman, aged 37, presented on both legs a dermatosis that had features of both Schamberg's disease and Majocchi's disease. The puzzling element in the picture was the presence of widespread telangiectasia. The patient gave roentgen evidence of pulmonary tuberculosis, and considerable amelioration of the telangiectasia was effected through the use of gold sodium thiosulphate, the injections of which had to be interrupted because of systemic reaction. The author believed the case to be of tuberculous origin.

TREATMENT OF PSORIASIS WITH SCALES FROM THE LESIONS. A. TOMA, Ann. de dermat. et syph. **2**:1110 (Oct.) 1931.

Three patients with psoriasis were treated by injections of scales from the lesions. Improvement was noted, the permanency of which will have to be determined by future developments.

GANDY, Houston, Texas.

GOLD THERAPY IN TUBERCULOUS ADENOPATHIES. R. HUGUENIN, M. LIBERSON and Y. DUPONT, Presse méd. **39**:833 (June 6) 1931.

Nine cases of tuberculous adenitis are reported in patients treated with intravenous injections of a solution of hyposulphite of gold and sodium. The dosage must be rather large in comparison with that given in pulmonary tuberculosis, and the total amount of the drug given must be at least 6 Gm. in weekly doses. All the cases reported responded, the degree of improvement depending to a large extent on the regularity with which the patient returned for treatment. The authors feel that this therapy in tuberculous adenitis has great promise.

DIAGNOSIS OF CONGENITAL OSSEOUS SYPHILIS IN EARLY INFANCY. M. PEHU and A. POLICARD, Presse méd. **39**:1245 (Aug. 22) 1931.

The spirochete invades the skeletal system about the fifth month of fetal life. Only the bones that ossify in cartilage are attacked before birth; those which have their center of ossification in membrane are attacked later. There is a remarkable symmetry of the lesions, and a majority of the bones show invasion, since there is little to hinder the progress of the infection. There is a decided difference between syphilis of early infancy and that of a later period when localization of the spirochetes has taken place. At this later time the lesions are neither generalized nor symmetrical.

The bone lesions of congenital syphilis may be classed as follows: 1. Osteochondritis. This is a lesion of intra-uterine life, disappearing about the third month after birth. Only bones ossifying in cartilage are attacked. 2. Ossifying periostitis. This usually succeeds osteochondritis, but may accompany it. This lesion is of later occurrence and is found, as a rule, after birth. It may attack bones ossifying in membrane. On roentgen examination the bones show concentric lamellae as very regular black lines. 3. Osseous rarefactions. These are seen, on roentgen examination, at the metaphyses or diaphyses of bones of the extremities. They are irregular, with no borders, and vary from the size of a pinhead to that of a bean. The bone may have a "worm-eaten" appearance. These lesions are actual gummas. 4. Exuberant osseous production. This is an actual hyperplasia, usually with cauliflower-like formations of the bones of the extremities. It is a rare lesion. 5. Transverse bands. These are rather rare, and have the appearance of ribbons, seen at the diaphyses. They represent the remains of an osteochondritic process that has survived intra-uterine life.

From the histophysiologic point of view, osseous syphilis is characterized by an exaggeration of osseous absorption. Each of these forms has its characteristic roentgenologic appearance, not easily confused. The only differential problems concern rickets and scurvy, but these conditions, too, have a characteristic picture. During the first year, roentgen observations are an important part of the diagnosis of congenital syphilis. After the first year, the picture is not so characteristic.

The symptoms of osseous syphilis vary. There may be no pain, even with marked lesions, or the pain may be intense, either spontaneous or induced. There may be localized muscular contractions, and the muscles may be in a state of hypertony.

BIEKER, St. Petersburg, Fla. [AM. J. DIS. CHILD.].

METASTATIC SARCOMA OF THE CILIARY BODY. A. CORRADO, Arch. di ottal. **38**:508 (Sept.); 523 (Oct.) 1931.

The author reviews fourteen cases of metastatic sarcoma of the uveal tract previously reported. His patient was a man of 26, in whom, six years before, a pigmented tumor had developed on the right calf, which slowly increased in size for four years. Following an injury to the tumor, it began to grow rapidly and became painful and ulcerated. It was removed with some enlarged inguinal glands, but recurred after seven months. Pigmented nodules appeared in the subcutaneous tissue elsewhere, and an empyema developed. A loss of the visual field was noted, and ocular examination revealed an oval black mass in the angle of the left anterior chamber. Vision was reduced to counting fingers owing to lens opacities, and the tension was reduced. The eye was enucleated because of pain. Six weeks later the right eye showed a similar black nodule in the chamber angle which grew rapidly, until in three months vision was reduced to counting fingers. A nodule was also present in the upper tarsus. Sections showed the mass to have originated in the ciliary body involving part of the choroid posteriorly and the iris root anteriorly. It was composed of spindle cells containing pigment and was considered a melanotic sarcoma. Of the fourteen cases of metastatic sarcoma previously reported, in only four did the tumor originate in the iris or ciliary

body. In all four cases the original tumor was in the skin. In only one previous case, that of Cordes and Horner, were both irides involved. A bibliography is given.

GIFFORD, Chicago [ARCH. OPHTH.].

GERSON-HERRMANNSDORFER-SAUERBRUCH DIET IN CUTANEOUS TUBERCULOSIS. A. CROSTI and E. SCOLARI, Gior. ital. di dermat. e sif. **72**:897 (Aug.) 1931.

The Gerson diet, modified by Sauerbruch and Herrmannsdorfer, was used by the authors in several cases of lupus vulgaris and in one case of tuberculosis ulcerosa of the palate. In all cases of lupus the diet was rigorously maintained for a year, and in the case of ulcerous tuberculosis for five months.

There were satisfactory results in one case of lupus vulgaris, improvement in three others, no improvement in one case of old-standing atrophic lupus and entirely negative results in one case of lupus tumidus of the scalp which grew steadily worse. In the case of tuberculosis ulcerosa of the palate, the ulcer healed in four months, but the pulmonary condition of the patient became very much worse. No patient was entirely cured.

Chemical investigations were conducted by the authors in patients on this diet, with the following conclusions: Sodium, calcium and potassium remain practically normal in the blood, although sometimes there is a lower sodium content and consequently also lower chlorides. The refractometric index of the blood remains usually high. Dextrose tends to remain slightly below normal. Examination of the urine shows a tendency to acidosis, and the alkaline reserve of the blood is usually low.

SUPERFICIAL CUTANEOUS EPITHELIOMAS. G. BERTACCINI, Gior. ital. di dermat. e sif. **72**:946 (Aug.) 1931.

The author reviews the literature and begins with a critique of the divers opinions concerning the classification of superficial cutaneous epitheliomas, particularly of Paget's and Bowen's diseases, considered by some as epitheliomas and by others as precancerous lesions. He reports four cases of his own.

He concludes that all these superficial epitheliomas may be classified under the common heading of "multiform superficial epitheliomas of the skin," although he recognizes that cases of Paget's and Bowen's diseases have a long precancerous phase, which, nevertheless, is not characteristic of the greatest part of their course.

BIOLOGIC TESTS OF THE FUNCTION OF THE ENDOCRINE SYMPATHETIC SYSTEM IN CUTANEOUS DISEASES AND SYPHILIS. ANATONIO MARRAS, Gior. ital. di dermat. e sif. **72**:1001 (Aug.) 1931.

The author used the method of Pacchioni for the study of basal metabolism, the colorimetric method for p_H determinations, the van Slyke method for that of the alkaline reserve and the MacLean method for dextrose determination.

The dermatoses studied were acne vulgaris, alopecia areata, dermatitis exfoliativa, Duhring's disease, keratosis spinulosa, eczema, neurofibromatosis, purpura hemorrhagica, pemphigus vulgaris, psoriasis, parapsoriasis, vitiligo, lupus vulgaris, scrofuloderma, tuberculosis ulcerosa, lupus erythematosus, Bazin's disease, epithelioma, fibrosarcoma, pityriasis versicolor, erysipelas, sycosis vulgaris, scabies, kerion and syphilis. There was a total of seventy-nine cases in which complete investigations were made.

In tuberculosis, syphilis, parasitic diseases and neoplastic diseases, there were no variations from the normal. In some dermatoses there were some alterations, which, nevertheless, were not constant enough to warrant definite conclusions.

PARDO-CASTELLO, Havana, Cuba.

THE EFFECT OF IODOFORM ON CULTURES OF THE DUCREY BACILLUS. H. FRÖHLICH, Arch. f. Dermat. u. Syph. **164**:273, 1931.

Iodoform has a marked bactericidal effect in vitro on cultures of the Ducrey bacillus. This effect is increased by the presence of pieces of skin or kidney tissue. The drug showed no bactericidal power when tested in the same way with Staphylococcus, Gonococcus or colon bacilli.

A DERMATOMYCOSIS CAUSED BY THE "TORULA EPIZOA CORDA." A. P. ALATORZEFF, Arch. f. Dermat. u. Syph. **164**:279, 1931.

In two cases of tinea of the scalp in children caused by Trichophyton tonsurans-violaceum, there were in addition to the usual patches a few flat, hard, millet-sized nodules scattered over the head. From the latter areas an organism called "Torula epizoa corda" was isolated. The same organism was also found in several dogs showing a nodular eruption. By rubbing a culture into the skin of dogs, the author was able to produce a nodular eruption, and he demonstrated the presence of the spores in the upper layers of the affected skin.

ATYPICAL TINEA ERUPTIONS. AUGUST MATRAS, Arch. f. Dermat. u. Syph. **164**:291, 1931.

In two cases showing a generalized exanthem together with typical tinea infection of the feet, caused by the Kaufmann-Wolf organism, the reactions to trichophytin (Hoechst 1 : 50) were negative. The author, basing his conclusion on the work of Naegeli on allergic conditions in syphilis and tuberculosis, considers the absence of an allergic reaction in these cases to be due to an overwhelming of the antibodies by an excess of antigen.

Matras in addition describes two cases in which lesions resembling tinea circinata were present on the thighs and trunk. The causative organism was found to be the Epidermophyton inguinale, although the groin was free from lesions.

RELATIONSHIP OF THE HAIR AND THE COLOR OF THE SKIN TO CUTANEOUS EPITHELIOMA. S. EPSTEIN, Arch. f. Dermat. u. Syph. **164**:304, 1931.

Epitheliomas of the skin are found more commonly in persons of light skin and hair than in those of darker complexion and hair. The pigment probably protects the skin against the action of light, which is a factor in the production of these lesions.

MONASH, New York.

SCARRING RESULTING FROM DERMATITIS HERPETIFORMIS OF DUHRING. B. JOSSEL, Dermat. Wchnschr. **93**:1368 (Aug. 29) 1931.

Scarring following dermatitis herpetiformis is extremely rare. A 24 year old woman who had had this condition for thirteen years showed numerous atrophic scars.

BALANITIS XEROTICA OBLITERANS. ALFRED MÜLLER, Dermat. Wchnschr. **93**:1372 (Aug. 29) 1931.

A dorsal slit was performed to relieve a phimosis in a patient 60 years old. A few months later a bullous condition appeared close to the urinary orifice. In the course of three or four years a parchment-like change occurred on the glans penis, causing some difficulty in urination, but not sufficient to require surgical intervention. The author, in agreement with Stühmer, suggests a protective dressing with an ointment for some time after circumcision of a congenital phimosis to guard against the development of balanitis xerotica obliterans. This case differed from others in the literature in the age of the patient and in the length of time that it took to develop, as well as in the comparative mildness of the symptoms.

A Case of Generalized Papulokeratotic Dermatitis with Lamellar Scaling Associated with Osteomyelitis Femoris Staphylogenes. M. Ota and T. Aisu, Dermat. Wchnschr. **93**:1721 (Nov. 7) 1931.

During the course of an acute case of staphylococcic osteomyelitis in a 17 year old boy, a generalized eruption developed. It was symmetrical and papulokeratotic. The subacute course and lamellar scaling of large plaques and the fact that it cleared up readily differentiated it from other clinically similar conditions. Histologically, there were hyperkeratosis, parakeratosis, acanthosis and vacuolization in the prickle cells, with the formation of horny plugs in the follicles. Intradermal injection of an autogenous staphylococcus vaccine produced a local reaction, and the authors conclude that the osteomyelitis was the causative factor in producing the eruption on the skin.

The Treatment for Sycosis with Brilliant Green. A. S. Senin, Dermat. Wchnschr. **93**:1729 (Nov. 7) 1931.

Fifty cases of sycosis vulgaris were treated by vigorously painting the areas daily with a 1 per cent brilliant green solution in 70 per cent of alcohol. Crusts were first removed and infected hairs pulled out with the hair forceps. This treatment proved successful in every case, but had no effect on sycosis trichophytica or on furuncles.

Exanthematic Tick Fever. P. Regendanz, Dermat. Wchnschr. **93**:1765 (Nov. 14) 1931.

Exanthematic tick fever is a sporadic disease in the regions around the Mediterranean. It is caused by the bite of Rhipicephalus sanguineus. The condition consists of three stages: (1) fever without eruption for from three to five days; (2) an exanthem consisting of a generalized maculopapular eruption, at times associated with involvement of the mucous membranes, with persisting fever for from eight to ten days, and (3) an afebrile stage of seven days, during which the eruption fades. The disease is not transmitted from man to man. It was first described under the name of "fièvre exanthématique de Marseille," and has since been described under various other names. It is definitely distinct from Rocky Mountain spotted fever, kedani (tsutsugamushi) disease of Japan, pseudotyphus of Sumatra and tick bite fever of Nuttall (seen in East Africa).

Pityriasis Rosea Atypica. G. Chatschaturjan, Dermat. Wchnschr. **93**:1772 (Nov. 14) 1931.

In a group of 146 cases of pityriasis rosea the author noted 14 atypical cases. One group started as a maculopapular eruption, the individual lesions of which were the size of a pinhead. The lesions were more profuse on the chest and neck than on the sides of the trunk. The typical lesion first appeared after six or seven days. A second group was characterized by a disseminated urticarial outbreak with severe pruritus which became typical after a few days.

Chvostek's Sign in Psoriasis Vulgaris. Roman v. Leszczyński, Dermat. Wchnschr. **93**:1774 (Nov. 14) 1931.

The author reports finding a positive Chvostek sign in 72 of 245 cases of psoriasis. He interprets this as evidence of decreased activity of the glands of internal secretion of the head and neck.

WHITE SPOT DISEASE: A CONTRIBUTION TO THE THERAPY OF THE ATROPHIES ASSOCIATED WITH SCLERODERMA. JOSEF SELLEI, Dermat. Ztschr. **62**:237 (Nov.) 1931.

The author reports that in four of twelve cases of scleroderma observed by him, there was an associated "white spot disease." He previously advised a "ferment treatment" for scleroderma, and reports benefit from this form of treatment in various types of atrophy of the skin, including "white spot disease," when they are associated with scleroderma. The ferment treatment consists in the administration of preparations of the pancreas, stomach and duodenum, and also pepsin and hydrochloric acid when there is reduced hydrochloric acid in the stomach. Recently, he has also administered liver extract.

ESOPHYLAXIS AND THE RETICULO-ENDOTHELIAL SYSTEM. A. BÖHM and L. VÁMOS, Dermat. Ztschr. **62**:246 (Nov.) 1931.

The authors attempted experimentally to determine the mechanism of esophylaxis. They conclude that the reticulo-endothelial system is the source of the immune substances in this phenomenon, and that this function is stimulated by substances produced by the destructive action of certain irritants on the cells of the skin. The connection between the skin and the reticulo-endothelial system is probably through the blood stream rather than through the autonomous nervous system.

LUPUS VULGARIS SERPIGINOSUS SIMULATING A CHRONIC VEGETATIVE PYODERMA. O. DITTRICH, Dermat. Ztschr. **62**:252 (Nov.) 1931.

An extensive serpiginous ulcerating condition involving a considerable area on the trunk and on the thighs was considered clinically to be a chronic vegetative pyoderma. Sections, however, showed the presence of acid-fast bacilli; the tuberculin reaction was positive, and the inoculation of the pathologic material into animals gave positive results for tuberculosis.

AN ERYTHEMATOUS, BULLOUS, PUSTULAR EXANTHEM ASSOCIATED WITH POLYARTHRITIS ACUTA. THEODOR MÜLLER, Dermat. Ztschr. **62**:269 (Nov.) 1931.

The author observed four patients with acute polyarthritis who presented an eruption consisting of erythematous areas with small bullae that were chiefly located around the joints. The bullae contained clear fluid that became pustular and, in some instances, hemorrhagic. The lesions cleared up in a few days, without scarring. There were practically no subject symptoms so far as the cutaneous lesions were concerned.

REACTIONS OF THE BLOOD AND SPINAL FLUID OF HEALTHY AND SYPHILITIC MONKEYS. P. B. PHOTINOS, Dermat. Ztschr. **62**:274 (Nov.) 1931.

1. The serologic reactions (Wassermann, Meinicke clearing and Kahn tests) of the blood of nonsyphilitic monkeys were always negative. Infected animals showed a positive result from one and one-half to two months after successful inoculation.

2. The spinal fluid of two syphilitic monkeys was strongly positive, while that of two normal animals was negative. (Cercocebus monkeys were used.)

OBSERVATIONS IN A CASE OF CONGENITAL PORPHYRINURIA. H. T. SCHREUS and C. CARRIÉ, Dermat. Ztschr. **62**:347 (Dec.) 1931.

The patient was a laborer, aged 20, whose sister had suffered with a similar disease and had died at the age of 32. The condition started in the patient at the age of 5 and consisted of the development of bullae on areas exposed to the sun. These bullae healed, leaving scars. The season had no influence on the

development of lesions, except that there were more in the summer. Trauma of previously affected areas caused the formation of bullae. Physical examination gave normal results, except for an increase of the porphyrin in the urine. Exposed portions of the skin showed marked scarring, pigmentation and areas of depigmentation. Tests for liver function showed no abnormality. The condition is differentiated from hydroa vacciniforme in that there is no increase of porphyrin in the urine in the latter disease. Histologic study and experiments with artificial ultraviolet light were carried out. The blood serum, bullae and follicles of the skin showed a red fluorescence under the rays of a Kromayer lamp filtered through a piece of "Wood" glass.

COMPARATIVE OBSERVATIONS BETWEEN THE QUARTZ LAMP AND THE VITALUX LAMP. KURT HULDSCHINSKY, Dermat. Ztschr. **62**:358 (Dec.) 1931.

The author concludes that there are special indications for each lamp. He thinks that the relatively weak ultraviolet rays of the Vitalux lamp have a special field when long-continued mild radiation is desirable in the home of the patient.

TAUSSIG, San Francisco.

INHERITANCE OF PAPILLARY PATTERNS OF THE PALM AND FINGERS. B. MUELLER, Deutsche Ztschr. f. d. ges. gerichtl. Med. **17**:407, 1931.

In cases of questionable paternity, in addition to the blood grouping tests, the analysis of the papillary lines of the fingers and of the palmar ridges may, under certain favorable conditions, be used to advantage. The Gruenberg theory in regard to the inheritance of papillary arch formations is critically discussed and evaluated. The important work of Poll and his classification of various patterns are emphasized, since he seems to prove that, in particular instances, by a comparison test of papillary patterns of persons involved (mother, child and questionable father), the accused man may be excluded as parent of the child.

MILOSLAVICH [ARCH. PATH.].

BESREDKA'S ANTIVIRUS THERAPY AND ITS ACTION IN FURUNCULOSIS OF THE AUDITORY MEATUS. R. KURZHALS, Ztschr. f. Hals-, Nasen- u. Ohrenh. **30**:98 (Oct.) 1931.

Kurzhals points out that instead of administering the usual serotherapy that influences the entire organism, Besredka applies bacterial substances locally as a result of the observation that certain bacteria have an elective affinity for certain sites and organs and that the derivatives of the viruses, the antiviruses, have a specific and elective action. After describing the production of the antiviruses, the author reviews the opinions of other investigators concerning Besredka's antivirus therapy. Some assert that it is not due to a specific action, some deny the favorable results and others corroborate the favorable action. The author employed the antivirus therapy in thirty patients with furunculosis of the auditory meatus. The mixed staphylococcus antivirus was brought into the auditory meatus, and the latter was closed by a cotton tampon. The most favorable effect of this treatment was the rapid disappearance of the pain. The objective symptoms disappeared more slowly. The simultaneously existing suppurations of the middle ear were not influenced, but this had not been intended. In view of the favorable results obtained by him the author recommends this treatment.

EDITOR'S ABSTRACT [ARCH. OTOLARYNG.].

Society Transactions

SAN FRANCISCO DERMATOLOGICAL SOCIETY

April 9, 1931

HOWARD MORROW, M.D., *President, in the Chair*

MORPHEA. Presented by DR. STUART C. WAY for DR. HARRY E. ALDERSON.

J. W. H., a woman, aged 49, married, presents typical lesions from 1 to 3 cm. in diameter, arranged over the back, the sides of the neck, the upper anterior part of the chest, the posterior aspect of the right forearm and the thighs, the groins and beneath the breasts. The lesions are pruritic at times. The first one appeared in the lumbar region in September, 1930, following the removal of the gallbladder, which contained many stones. Since the operation, the patient has had pains in the lower dorsal region, which are attributed to adhesions. Panhysterectomy was performed twelve years prior to presentation on account of a fibroid, and an appendectomy had been performed twenty years prior to presentation. Otherwise, her health has been good.

She is rather pale, but her general condition is favorable. The basal metabolic rate is —11. Thyroid substance has been given for the past two weeks, and she has been rubbing castor oil into the lesions. At present, little improvement is noticed.

DISCUSSION

DR. ORLAND F. MONTGOMERY: My impression is that this patient has atrophic lichen planus. I believe that the lack of infiltration in the lesions and the fact that there is stippling of the lesions on the neck indicate that white spot disease should be considered.

DR. G. D. W. CULVER: I also think that this eruption is atrophic lichen planus. One of my reasons for thinking so is the location of the lesions; another is the border of one of the lesions on the left side, which appears to me to be more acute than the others. I looked for evidences of typical acute papules but could find none.

DR. H. MORROW: Do you not think that this case is white spot disease? There are no lesions typical of lichen planus or of morphea; there are the end-results of one of these conditions. Biopsy might be of value. Until this is done, the condition should be placed in the general classification of "white spot disease."

NOTE.—Sections of a lesion showed the picture of morphea and not that of lichen planus atrophicus.

SCLEROMA OF THE PALATE. Presented by DR. ESTEBEN REYES for DR. HARRY E. ALDERSON.

This paper will be published in a later issue.

IDIOPATHIC MULTIPLE HEMORRHAGIC SARCOMA (KAPOSI). Presented by DR. FRANCES TORREY.

An Italian man, aged 72, came to the clinic on March 5, 1931, because of a bleeding tumor on the left index finger which had persisted for several months. Examination showed a well circumscribed tumor which had the appearance of granulation tissue. This was removed with a curet and the base cauterized with a silver nitrate stick. On March 17, radon was applied (40.1 millicuries through a silver filter 0.5 mm. thick for one hour).

Both hands show diffuse cyanosis, with patches of deeper purple. Along the sides of the fingers there are irregularly shaped areas of infiltration; some of which were flat; others, the size of a pea. There is another pea-sized area of infiltration on the extensor surface of the base of the right great toe and a group of purplish red, flat, blotchlike infiltrations on the middle of the sole. Sections of the tissue taken from the finger confirmed the diagnosis of multiple idiopathic sarcoma of Kaposi.

DISCUSSION

DR. H. MORROW: You did not speak of the large vesicles found in the webs of the fingers. I think that Weiss was one of the first to bring out the fact that such vesicles occur. These symptoms have been rare in my experience. However, they are characteristically present in this patient, which is about the only fact that should be brought out. Otherwise this is just an ordinary case of Kaposi's disease.

VON RECKLINGHAUSEN'S DISEASE (DERMATOLYSIS). Presented by DR. C. J. LUNSFORD.

A woman, aged 20, stated that there had been a "birth mark" over the lower part of the back since birth. The lesion began to grow coincident with the beginning of menstruation, which was dysmenorrheic from the onset, and growth continued gradually for several years. On two different occasions the pain of the dysmenorrhea had been controlled by thyroid medication. Accompanying menstruation there has been a dead ache over the tumor. One brother has café au lait spots.

Inspection of the skin reveals a tumor involving the lower third of the back and buttocks to a line level with the anus. The covering skin is pigmented, being of a café au lait color above and dark brown below. Scattered over the entire surface are numerous pigmented and nonpigmented moles of various sizes. The lanugo hair is darker than that of the normal skin. The area is wet with a localized hyperhidrosis. The covering skin is thick and loose, and can be caught up in the hand and pulled away from the trunk for an abnormal distance. When the tumor is palpated, jellylike undulating waves can be felt. On deep palpation over each buttock, hard, painless, well circumscribed nodules are felt. The rest of the skin is normal, except for an oblong café au lait mark immediately above the left elbow. Further examination was negative, except for mild anemia and a basal metabolic rate of —18.

A section of tissue was taken for biopsy and prepared with hematoxylin-eosin, Weigert's and van Gieson's stains. The corium was seen to be made up of almost pure fibrous tissue.

DISCUSSION

DR. C. J. LUNSFORD: I presented this case because in my own experience I had never seen a tumor mass in this disease as localized and as large as this one, embracing the dermatolysis. Second, this case presented more excessive sweating localized over the area of skin than I had seen in such conditions, and thirdly, there was a definite history of pain in the tumor associated with menstruation.

DR. H. J. TEMPLETON: It is interesting that within the last week we have had a similar case in which the skin below the right scapula could be drawn out to a distance of from 5 to 7 inches (12 to 17 cm.), and we feel that it is the same syndrome—that of von Recklinghausen's disease with dermatolysis. If one accepts the belief that these tumors of von Recklinghausen's disease are derived from the sheath of Schwann of the nerves, one might explain the occasional pain from which this patient complains.

DR. C. J. LUNSFORD: So far as subjective symptoms were concerned, definite improvement occurred under thyroid therapy. Menstrual pains and pains in the tumor had ceased. I felt that this condition had some association with the endocrine system.

COLLOID MILIUM. Presented by DR. STUART C. WAY.

In T. C., a woman, aged 24, married, a native of Peru, nodules ranging in size from that of a small pinhead to that of a split pea, appeared beneath the eyes and on the forehead five years prior to presentation. They gradually increased in number and itched slightly. No attempt has been made to treat the condition.

DISCUSSION

DR. H. MORROW: How are you going to treatment the condition? The reason I ask is that no matter what is done, you will get little thanks because such lesions cannot be treated without the formation of scar tissue.

PARAPSORIASIS? Presented by DR. L. R. TAUSSIG.

In H. B., a deckhand, aged 29, the eruption first appeared six months before presentation, reaching its present extent within a short time. There has been no pruritis or other subjective symptoms. There is a macular and papular eruption extending over the trunk, thighs and arms. The face and scalp are entirely free, and there are only scattered lesions on the forearms and legs. The papules are guttate and scaly, suggesting the lesions of psoriasis. The macular lesions are somewhat irregular in outline and vary in size, and are covered with rather fine branny scales. The eruption is especially marked over the lower part of the trunk. There are no lesions on the elbows or knees. The inguinal and axillary glands are enlarged but not tender. The Wassermann test of the blood was negative. Biopsy was not done.

DISCUSSION

DR. ORLAND F. MONTGOMERY: We had a case about three months ago that was practically identical, except that all of the lesions were elongated and followed the general direction of the lines of cleavage of the skin. The condition was probably the Habermann entity. A peculiar thing about the case we saw was the fact that it cleared up rapidly under light quartz therapy. There were no vesicles present, but there were more numerous crusted lesions than there are in this case.

DR. L. R. TAUSSIG: I think that the only possible objection to a diagnosis of parapsoriasis is that the duration is as yet rather short; the patient had had the condition for only six months. There is a possibility that the condition is a form of psoriasis.

LYMPHOBLASTOMA (LYMPHOSARCOMA?). Presented by DR. H. J. TEMPLETON.

C. K., a man, aged 28, first noted a doughy nonpruritic infiltration of the cheek nine months before presentation. New patches have gradually appeared until he now presents plaques of various sizes on his face, arms, legs and trunk. These areas vary from 1 to 5 cm. in diameter. They are rather sharply marginated, deeply indurated and "doughy," somewhat violaceous, insensitive and nonpruritic. No anesthesia is present. No generalized adenopathy was found.

The Wassermann reaction of the blood was negative. A Moro percutaneous test for tuberculin applied to one of the lesions gave negative results. An intradermal test with organic luetin gave negative results. The blood count showed: white blood cells, 10,550; small mononuclears, 23 per cent; large mononuclears, 5 per cent; polymorphonuclears, 71 per cent, and eosinophils, 1 per cent. Biopsy showed a solid mass of cells of the lymphocyte series occupying the entire corium and extending into the subcutaneous tissues.

Five months before presentation, the patient noted a painless, gradually progressive swelling of both testes. They are now about the size of a fist, smooth, and not nodular. Three months before presentation hoarseness was noted. A laryngologist reported that there was probable involvement of the larynx. Mycosis fungoides can be eliminated by the microscopic picture, leukemia cutis by the

normal blood count and lymphogranulomatosis by the absence of Dorothy Reed cells. By the process of exclusion one arrives at the diagnosis of the lymphosarcoma type of lymphoblastoma.

DISCUSSION

DR. H. J. TEMPLETON: I should present this patient with the diagnosis of lymphoblastoma, with the belief that it is the lymphosarcoma type. There is a rich cellular infiltration of lymphocytic cells involving the whole cutis, and mitotic figures are present.

DR. S. C. WAY: Dr. Templeton stated that the normal blood count ruled out leukemia cutis. I should like to ask whether he has observed that in early cases of leukemia cutis the white cell count is often normal and that frequently it does not become increased until later in the disease.

DR. H. J. TEMPLETON: In answer to Dr. Way, I should say that this is not an early but a very late case. The testes are 6 inches (15.2 cm.) in diameter, and there is extensive cutaneous and laryngeal involvement.

MYCOSIS FUNGOIDES. Presented by DR. H. J. TEMPLETON.

G. S., a man, aged 44, noted small patches of dermatitis on the inner surface of the right thigh two years before presentation. New patches have gradually appeared until now there are many areas ranging in size from that of a coin to that of a palm scattered over the arms, legs, trunk and face. These lesions are sharply marginated, indurated and pink, and are covered with micaceous scales. There is no itching. On the face there have been a number of nodules the size of a split pea. A blood count was normal. The Wassermann reaction of the blood was negative. Biopsy showed an infiltration in the upper part of the corium consisting mostly of lymphocytes, with enough cellular polymorphicity to be suggestive, but not pathognomonic, of mycosis fungoides. Under treatment with fractional doses of roentgen rays, the lesions on the face and neck have almost disappeared.

DISCUSSION

DR. H. J. TEMPLETON: I based my diagnosis on the clinical appearance and the rapid response of the lesions on the face to roentgen therapy, although the section studied at biopsy was not typical. I consider the condition mycosis fungoides. I am at a loss to explain the absence of pruritis.

DR. G. D. CULVER: We had a similar case. For fifteen years before the patient died there were periods of many months when there was no itching, even when active lesions were present. I do not think that the absence of itching is necessarily a proof that the condition is not mycosis fungoides.

TOXIC ERYTHEMA (ERYTHEMA ANNULARE CENTRIFUGE?). Presented by DR. H. J. TEMPLETON.

N. H., a man, aged 21, a student, noted an eruption on his arms and legs in September, 1930, following a mild gastro-intestinal disturbance. There is no history of the ingestion of a drug. There is a definite history of allergic response in that the father had hay fever and the patient had hives during infancy. The patient has not noted a relation of the eruption to the ingestion of any particular food. All of the dead teeth and the tonsils have been removed.

Examination disclosed gyrate festooned lesions of the erythema multiforme type, varying in size from that of a coin to that of a palm. Moderate pruritus is present. The blood count is normal. The Wassermann reaction of the blood is negative. The stools are negative for parasites and ova. Otolaryngologists find no evidence of sinusitis. Allergists have obtained positive reactions to house dust and corn. Removal of corn from the diet has not produced an improvement. Gastric analysis shows a normal curve.

One object of our presentation of this case is to stimulate discussion as to whether or not this evident example of a toxic erythema fits into the diagnosis of erythema annulare centrifuge.

DISCUSSION

DR. H. J. TEMPLETON: This is manifestly some form of toxic erythema. Just after I last saw the patient I was reading in the *British Journal of Dermatology and Syphilis* about erythema annulare centrifuge, and it seemed to me that this case would fit into the picture. Of course, I think that needless names are being added, but it seems to me to be a good descriptive term. I should like to know if any of the members here have seen cases that have been called "erythema annulare centrifuge."

DR. J. M. GRAVES: I have seen one case similar to this one. The eruption had recurred for several years. A diagnosis of erythema annulare centrifuge was made by Drs. McKee and Wise.

COCCIDIOIDAL GRANULOMA. Presented by DR. STUART C. WAY for DR. HARRY E. ALDERSON.

H. J. R., a farmer, aged 40, married, presents small and large abscesses scattered irregularly over the neck, chest, abdomen, arms, buttocks, thighs and legs, most of which have practically healed. There is a large fluctuating abscess on the upper part of the left shoulder anteriorly. Fresh pus shows numerous coccidioidal organisms. Typical cultures have been grown from the pus by Dr. Dickson at Stanford.

The present condition started late in 1929 with an attack of pneumonia. The patient has no pulmonary lesions at present, and it is uncertain whether or not that attack was due to the organism. Several weeks after recovery from pneumonia, abscesses appeared over the body and limbs. The patient then entered the hospital, where a diagnosis of granuloma coccidioides was made. An injection of antimony and potassium tartrate was given every other day for two months, with no improvement. Subsequently, thymol was given internally, which the patient believes caused improvement. Since December, 1930, injections of a copper preparation and coccidioidine have been given intradermally. The general physical condition has improved greatly, but the patient complains of generalized muscular soreness. At present, he appears to be just about holding his own. When he is bruised, a typical abscess develops at the site of the injury.

DISCUSSION

DR. S. C. WAY: Dr. Alderson has always had charge of the treatment of this case, which has been carried out by Dr. Stolle of Dixon. The cultures were made at Stanford, and I have with me a growth on dextrose mediums which I should be glad to show after the meeting.

Sept. 25, 1931

MORPHEA. Presented by DR. HARRY E. ALDERSON.

I. P., a girl, aged 8 years, has an eruption presenting a zoniform distribution over the right lumbosacral region and the lateral aspect of the right thigh. The upper lesion appeared first. It was a grayish-white area with an inflammatory areola. Itching was marked. As the areola faded, the pruritis ceased. There are now no symptoms.

Two weeks prior to presentation the linear lesion developed on the thigh. It is similar to the original lesion. There is a congested area between the two areas. At present there are no symptoms.

This is a typical case of morphea. The condition has not spread and presents a zoniform distribution. The patient's general condition is good. She looks pale but is not anemic. So far no cause for the trouble has been found. A basal metabolism test is to be made soon.

The occasional appearance of scleroderma suggesting a nervous influence is interesting. Some time ago I presented a Dutch girl who had two patches on her neck. Later when I showed her again she had grown considerably, and the patches of morphea had grown correspondingly. They had not been modified in spite of thyroid stimulation.

I presented another patient, a man, before this society. He had morphea on the top of his head, which was bald. He had struck his head on a beam, and a patch 8 by 2 cm. had appeared in the traumatized areas. During the past few years it has grown smaller until at the time of this report it is about half its original size. Morphea appearing at the site of traumatism and showing zoniform distribution suggests some direct nervous influence.

CHANCRE OF THE TONGUE. Presented by DR. FRANCES TORREY.

Mrs. O., aged 38, was referred to the clinic today because of an indurated ulcer on the tongue. Two weeks ago she noticed a small "pimple-like" swelling on the left lower margin of the tongue. This grew rapidly and became tender. Five days ago she had a slight sore throat which lasted two or three days. At present she has no discomfort. She has never noticed any swollen glands.

The last known sexual contact was on July 6. She has three children from two former marriages; the youngest is 17 years of age.

On the ventral surface of the left half of the tongue, there is a single erosion with an indurated border. There is a soft, palpable gland about 1.5 cm. in diameter under the left side of the jaw. Dark-field examination was positive for Spirochaeta pallida. The Wassermann reaction is 4 plus.

This case was presented because of the apparently long incubation period and location of the lesion. The Wassermann reaction of the husband's blood was negative.

TUBERCULOSIS (?). Presented by DR. JOHN M. GRAVES.

O. H., a Chinese man, aged 28, in good general health, visited China and returned four years prior to presentation. The present illness began one year previous to presentation and has not affected his general health.

Examination showed a young Chinese man, to all appearances generally below par. General examination, however, revealed no abnormality. The lungs in particular were normal. Over the right cheek there was a dark red indurated plaque. This area covered nearly the entire cheek, extended onto the nose and involved part of each lid. The outer part of the lesion was actively inflammatory. The central area was apparently clearing, with slight atrophy. There were one or two small satellite lesions. Sensitiveness to touch and pain was decreased, especially over the center of the lesion. The hypothenar eminences were slightly flattened, and the ulnar nerves were palpable.

The Wassermann test was negative. Biopsy was performed.

The patient was told to take cod liver oil and tomato juice, avoid salt, and take neoarsphenamine, three doses of 0.3 Gm., and gold sodium thiosulphate, 0.01 Gm.

There has been no apparent change in the lesion since the institution of treatment.

While I presented the boy with the diagnosis of tuberculosis, I realize that there are objections to that diagnosis. I have considered Hansen's disease in

view of the anesthesia; but if this case were one of Hansen's disease there would have been many micro-organisms in the tissues. The pathologic picture suggests tuberculosis.

DISCUSSION

DR. HIRAM MILLER: I think that this patient's cutaneous lesion is due to tuberculosis. I am not sure whether the condition is true tuberculosis or toxic tuberculosis. The age of the patient and the rapid growth of the lesion would be against a diagnosis of true tuberculosis. The asymmetrical location should be unusual in toxic tuberculosis. An important point is the presence of a few satellite lesions at the upper edge of the area. I think that this is strongly in favor of a diagnosis of true tuberculosis.

DR. E. K. STRATTON: Clinically, I thought the condition was lupus vulgaris. I cannot agree with Dr. Graves, however, that absence of bacilli is against a diagnosis of leprosy.

DR. HARRY E. ALDERSON: The condition looks like tuberculosis. The architecture of the tissue that was seen was not that of leprosy. There are no Mickulicz cells or other features of leprosy. Yet it is hard to explain the anesthesia. I think that the pathologic picture fits in more with tuberculosis than with leprosy.

DR. HOWARD MORROW: I do not think any of the members of this society have seen a case of lupus vulgaris in which the lesion extended as rapidly as this one did. When I first saw the patient I thought the condition was lepra. Although the satellite at the upper border was not like those usually seen in lepra, a study of the sections confirms that diagnosis. I do not see how the patient could have as marked anesthesia as he has with tuberculosis. I am not convinced, however, that the case is one of typical lepra. Material from the lesion should be injected into guinea-pigs. If the guinea-pigs die of tuberculosis, a diagnosis of tuberculosis must be made.

DR. L. R. TAUSSIG: It seems to me that a diagnosis of tuberculid rather than of tuberculosis of the skin should be considered. The microscopic appearance fits more closely the description of sarcoid than that of lupus vulgaris.

LUPUS VULGARIS. Presented by DR. NORMAN N. EPSTEIN.

E. F., a colored woman, aged 62, was first seen on Oct. 23, 1930. She presented an inflammatory process involving the tip and alae of the nose, the upper lip and the chin. Lesions were also present on the right ear and on the right side of the face. There was fusiform swelling of all of the fingers of the left hand and of two fingers of the right hand at the second interphalangeal joints. On the wrists and forearms were infiltrated papules. The condition was of seven years' duration.

The Wassermann test was negative. The heart was enlarged.

A roentgenogram of the chest was negative for tuberculosis. On roentgen examination the phalanges of both hands showed multiple areas of loss of substances. There was no evidence of formation of new bone. There were suggestions of changes in circulation.

It is interesting that two of the roentgenologists made a diagnosis of tuberculosis of the bones of the hands, although two others disagreed with that diagnosis. The lesions of the forearms and wrists are unusual. Microscopically, they have the structure of tuberculosis.

DISCUSSION

DR. HARRY E. ALDERSON: I should like to comment on a similar case. My associates and I showed a patient at a meeting of this society who had lupus vulgaris as well as lupus erythematosus of the face, and tuberculosis of a finger necessitating amputation. She was given a good deal of therapy with gold preparations. Recently when she called at the clinic she was practically well.

DR. NORMAN N. EPSTEIN: The patient presented here was given a few injections of a gold preparation, without effect. She has a weak heart, and I did not wish to experiment further with the treatment.

DIFFUSE IDIOPATHIC ATROPHY. Presented by DR. NORMAN N. EPSTEIN.

I. H., a white woman, aged 71, presents a bilateral and symmetrical atrophy of the skin extending from the groins to the dorsum of each foot. The process is most pronounced over the extensor surfaces, particularly those of the knees and shins, but is also marked over the thighs. The skin is purplish pink and translucent. It has the texture of cigaret paper. The superficial veins can be seen clearly.

The condition developed gradually during the ten years prior to presentation. There is no history of preceding dermatitis. The Wassermann test is negative. Varicose ulcers have appeared on the left shin.

DISCUSSION

DR. HIRAM E. MILLER: I think that this case is a typical one of acrodermatitis chronica atrophicans. I have seen several cases of this condition recently in which surgeons were planning to make injections into the varicose veins, and consulted me concerning the advisability of this procedure. My opinion is that it is not advisable.

DR. NORMAN N. EPSTEIN: I should like to know whether all of these cases come under the classification of acrodermatitis chronica atrophicans. This patient had no dermatitis.

DR. HARRY E. ALDERSON: I have never seen a case of acrodermatitis chronica atrophicans exactly like this one in that the lesions in this case are symmetrical and limited to the lower part of the thighs and to the knees, leaving the legs entirely free from involvement.

The skin on the legs looks like ordinary senile skin. The patient is over 70 years old.

DR. H. J. TEMPLETON: It is interesting that on the right lateral aspect of the right knee there are small fibrous nodules the size of a split pea of the type called acrofibromatous by Oppenheim. These are not infrequently seen in acrodermatitis chronica atrophicans.

CONGENITAL ECTODERMAL DEFECT. Presented by DR. JOHN M. GRAVES.

E. B., a man, aged 24, whose mother had told him that all his nails were present at birth, had noticed all his life exceptional effects on the skin following slight injury. He stated that after the slightest injury in certain areas there developed blisters that healed and formed scars. He is a recent university graduate. He has seldom been free from lesions for the past several years.

He apparently had a cardiospasm which was relieved by dilatation. There has been no recurrence.

The hair is coarse, thin and dry. There is frontal alopecia and the brows are scant. The upper part of the face is noticeably broad, and the lower part is narrow. The teeth are all present, but much dental work has been necessary.

The nails are entirely absent.

Cutaneous changes are seen over the temples, supraclavicular regions, lumbosacral region, anterior axillary regions and palms. In these areas there are thin atrophic scars surmounted by vesicles both ruptured and intact. The palms are markedly scarred so that the palms and fingers are somewhat flexed. The function of the hands is, however, good. A specimen for biopsy was taken from the left anterior axillary region. The tissue removed comprised a complete unruptured vesicle which showed what was apparently a secondary inflammation. On staining it for elastic fibers, I found that they were practically absent. One had to hunt

to find an occasional single fiber. The specimen had the appearance of connective tissue in an ordinary scar. I classified the case as one of congenital ectrodermal defect. The condition seems to be localized. Only certain parts of the skin are involved. The patient's history is definite as to the fact that the vesicles develop only as a result of injury.

I was struck with the fact that the patient's face is very wide through the malar eminences and narrow in the lower half. The picture that McKee published in illustration of congenital ectodermal defect had exactly that contour.

DISCUSSION

DR. H. E. MILLER: There is undoubtedly an ectodermal defect in this patient, but I do not think that it fits in with the entity, congenial ectodermal defect. It is of interest that the patient had nails on his hands and feet when he was born. He has bullae on the palms of his hands and wherever trauma occurs. Probably the condition is atypical epidermolysis bullosa.

DR. M. T. MAYNARD: The patient's nose is well formed. He apparently sweats. His hair is not very scanty. I wonder why Dr. Graves made a diagnosis of congenital ectodermal defect.

DR. JOHN M. GRAVES: I should consider that the patient's hair is scanty. The enamel of his teeth is faulty; he has bullae as a result of injury, and he has no nails. The pathologic condition is confined to tissue derived from the ectoderm.

COCCIDIOIDAL GRANULOMA. Presented by DR. NORMAN N. EPSTEIN.

A. B., a white man, aged 66, a laborer, formerly a seaman, had a lesion involving the greater part of the back of the left hand, made up mainly of pitted scars with an occasional small skin abscess. The condition has been present for fifteen years and began shortly after he had begun to work in the San Joaquin Valley. There have been no constitutional symptoms.

Biopsy of the lesion showed Coccidioides embedded in the central portion of giant cells. Cultures showed a growth of Coccidioides.

No evidence of visceral involvement could be discovered. The lesion has showed little tendency to extend during the past five years prior to presentation.

It was thought advisable not to attempt any vigorous therapy as the patient is doing satisfactorily.

DISCUSSION

DR. E. K. STRATTON: You do not consider it a menace for the patient to be at large.

DR. HIRAM E. MILLER: There is no record in the literature of transfer of the disease from one person to another.

DR. M. T. MAYNARD: Dr. Dixon of Stanford University considers these cases infectious.

PERIADENITIS MUCOSAE NECROTICANS RECURRENS (?). Presented by DR. H. J. TEMPLETON.

J. S., aged 25, a Japanese, was referred to me on Aug. 12, 1931, because of two nodules of the glans penis the size of a split pea. The patient stated that these had begun about two months previously, as small firm lumps under the mucous membrane. Inspection disclosed two nodules about the size of a split pea which were evidently of rather deep origin as the mucous membrane seemed stretched over them without being ulcerated. They were firm and painless on palpation. The color was dusky red. There was no involvement of the inguinal glands.

During the six weeks that the patient has been under observation the nodules have gradually approached the surface. The mucous membrane covering them became involved and sloughed out leaving the ulcers which are present.

Elsewhere on the glans penis there were two scars of healed ulcers about 1 cm. in diameter and about 5 mm. deep. These scars were punched-out and sharply defined. They resulted from nodules similar to the present ones and occurred one year prior to presentation.

There is a scar on the right cornea from an ulcer that occurred in 1927. The ophthalmologist consulted by the patient at that time suspected tuberculosis. General physical examination disclosed iritis, healed tuberculosis of the lungs and hypertension. The urine and blood count were normal. The Wassermann test was negative at that time and on four occasions since then. The Pirquet test was positive in 1927, but a Moro tuberculin ointment test was negative one month prior to presentation. An organic luetin test was negative. Cultures from the lesions were negative for fungi. The lesions did not heal following eight injections of neoarsphenamine.

A nodule was removed prior to ulceration. The pathologic condition was mainly in the corium and consisted of well defined areas of necrosis. These areas did not show the epithelioid cell and giant cell reaction of papulonecrotic tuberculid. Rather, they were composed of centers of erythrocytes in various stages of destruction surrounded by a zone of lymphocytes.

From the diagnostic standpoint I have considered papulonecrotic tuberculid but am more inclined to regard the condition as a possible example of periadenitis mucosae necroticans recurrens.

DISCUSSION

DR. HIRAM E. MILLER: I am inclined to think that the condition does not fit in with a diagnosis of Sutton's disease. Periadenitis mucosa necroticans recurrens is very painful and has a definite course, and the lesions have a central necrotic plug that separates and heals in a week or ten days. The type of scar in this case is different; it is level and smooth, and not irregular or depressed as in Sutton's disease.

When the sections were shown on the screen, Dr. Epstein mentioned that the condition looked like thrombosis, but it is difficult to account for the inflammation in the upper part of the epidermis.

PHILADELPHIA DERMATOLOGICAL SOCIETY

J. P. GUEQUIERRE, M.D., *Secretary*

Nov. 6, 1931

J. M. SCHILDKRAUT, M.D., *President*

A CASE FOR DIAGNOSIS (PEMPHIGUS VEGETANS?). Presented by DR. F. D. WEIDMAN.

A. F., a woman, aged 40, on admission to the Philadelphia General Hospital had a temperature ranging between 102 and 105 F., and complained of chills and sore throat. The tongue was swollen and red, but a false membrane was not present. There were moist ulcerative and erosive areas in the axillae and around the umbilicus and genitalia. Those around the genitalia definitely resembled mucous patches. There was an extreme grade of paronychia affecting several fingers of both hands. Four days after admission a universal, dusky, morbilliform exanthem appeared, succeeded by a few petechiae the next day. In four or five days the latter eruption regressed *pari passu* with the fever.

The results of blood culture and of the Wassermann test were negative; the red blood cells were slightly reduced; polymorphonuclears numbered 3,600. Vincent's organism was found in all of the lesions examined and also in the mouth and throat. Donovan's bodies were not found. The results of biopsy were not distinctive.

The past history brought out that the patient had had a nasal operation two months prior to admission; shortly after this she noticed an ulcerated area around the umbilicus; the genital and axillary lesions developed subsequently. In another hospital she had been treated with neoarsphenamine for a disease of the blood, although the Wassermann reaction at this time was negative. She was also seen by Dr. Beerman at the Skin Clinic of the University Hospital; repeated dark-field examinations and a Wassermann test resulted negatively.

This patient is particularly worth showing in view of the colored woman shown last month, who had a similar condition in same locations: in the mouth, around the umbilicus, in the axilla and around the genitalia. The former patient has improved slowly; it will be recalled that she showed a few bullous lesions and that the diagnosis could not be made conclusively. However, a severe general toxic state, perhaps of the order of butcher's pemphigus, was certainly indicated. I feel that the same is the situation with the patient shown at this meeting. She has not presented any bullae. On the other hand, there are paronychiae, such as those presented by one of the patients whom Dr. Stokes remarked about in the discussion of last month. The association of Vincent's organism with the lesions in both of these cases brings them even closer together.

The subsequent course in this patient, involving the development of vegetative lesions, was differenct from that of the former patient. It is indeed most singular that two patients with such a bizarre and consistent set of symptoms should be observed so close together; a clinical entity is strongly suggested.

In spite of local treatment, the lesions have not regressed; their extension around the anus and into the intergluteal furrow suggests the distribution of granuloma inguinale.

NOTE.—Bullae of the pubic region and arms developed two weeks after presentation. The Pels-Macht test (kindness of Dr. Pels) was negative.

DISCUSSION

DR. C. S. WRIGHT: I think that about five years ago Dr. Greenbaum had a similar case in the Graduate Hospital in which he recovered Vincent's organisms all over the body and determined at the time that they were secondary invaders. I agree with the diagnosis of pemphigus vegetans.

DR. H. BEERMAN: This patient came to the University Hospital for pruritus of unknown origin about a year ago. Some urticarial lesions were the only ones discovered. She had a rectal operation at the Pennsylvania Hospital. A diagnosis of syphilis was made, and treatment by means of neoarsphenamine was instituted. Further studies were made, including dark fields and smears, but the patient has not been seen for several weeks, and I am surprised to see the large axillary fungating lesion.

DR. ROBERT GILMAN: Possibly one should not draw an analogy between Vincent's infection of the ordinary skin and of the mucous membrane. Yet with the intensive treatment given this patient during the past three weeks there has been no abatement, but rather progression; smears taken from time to time still show the organism. I feel that Vincent's organism is a secondary invader, as in Dr. Greenbaum's case, and that it in no way affects the diagnosis of pemphigus vegetans.

DR. H. J. SMITH: The patient in Dr. Stokes' case, which Dr. Weidman mentioned, left his care three weeks ago and it has just been heard that he has died. The case was similar to this in the distribution of the lesions and in the almost universal paronychia that the patient presented both on the toes and on the fingers.

DR. F. D. WEIDMAN: There are some symptoms in this case that are entirely contrary to the idea of ordinary pemphigus—the paronychia, for instance, and the way these lesions begin, as merely inflammatory erosions and not the noninflam-

matory bullae of pemphigus. I think, therefore, that although for purposes of filing one can record this as a case of pemphigus vegetans, it should by no means be regarded as an instance of the same pathologic process that is usually seen in pemphigus.

DR. E. F. CORSON: One might call the condition dermatitis vegetans.

A CASE OF EXTENSIVE ANGIOMATOUS NEVUS ASSOCIATED WITH CONGENITAL HYPERTROPHY OF THE TOES. Presented by DR. F. D. WEIDMAN.

J. R., a girl, aged 12 years, from the medical wards of the Philadelphia General Hospital, presented a port wine nevus of extraordinary extent, involving the greater part of the torso and lower extremities, with a definite predilection for the lateral aspects. The toes of both feet were hypertrophic; roentgenograms showed lengthening of the metatarsals and of the phalanges of the second and third toes of the right foot, while the left foot exhibited only an increase in size of the bones of the great toe. The angioma was unusually faint; it required some discrimination to distinguish it from patches of erythema multiforme. Thus in part it was blotchy and in part it extended as broad sheets, the color of which could be expressed by slight pressure. It is evident that in this case the step is only a short one between a dilatation of preexisting normal capillaries and the "new formation" of capillaries that is commonly understood by the term "angioma." The presentor did not believe that, strictly speaking, the lesion was a nevus, but rather a hamartomatous state. It was necessary under these conditions to inquire whether these vascular faults might be referable not to a fundamental congenital anomaly within the "angioma" itself but to some other organ or system such as the autonomic-thyroid complex; however, the outlines of the eruption appear to be constant—something that should not be expected if the vascular disturbances were referable to the thyroid-nervous factor.

Inquiry has been made about the mentality of this child and the possibility of associated internal congenital anomalies. Such anomalies appear to be absent.

Both ankles were swollen, giving the impression of a pseudo-elephantiasis. There were several scars on one ankle; it is said that, about a year prior to presentation, incisions were made at these positions for drainage on account of a suggested tuberculous osteomyelitis. Roentgenograms show some rarefaction and destruction of the bone space between the tibia and astragalus. In view of the well known association of lymphangiomatous and hemangiomatous processes, together with experience in other cases, the thickening of the soft parts around the ankles is likewise readily referable to a congenital abnormality.

The points that the case illustrates are: first, the well known association of two or more congenital anomalies and the necessity for inquiry for additional, even internal, ones and secondly, the close approach that the vascular architecture of angiomatous nevi may have to the normal, i. e., to diffuse telangiectasia.

The presentor regretted that opportunity was not afforded to test the effect of thyroid, ephedrine, epinephrine and like drugs on the nevus, not therapeutically but physiologically.

DISCUSSION

DR. A. STRAUSS: This case looked like one of endocrine disturbance. I agree that when there is a marked anomaly there is apt to be more than one present. In some cases there is also a mental defect. This girl seems to be rather alert.

A CASE OF LUPUS ERYTHEMATOSUS OF THE EYELIDS AND BUCCAL MUCOSA. Presented by DR. J. V. KLAUDER.

K. J., a man, aged 40, from the Wills Eye Hospital clinic, presented, when first seen five months prior to this presentation, typical lupus erythematosus involving almost the entire upper and lower lids of both eyes and their margins. The appearance at the latter sites simulated blepharitis.

The disease of the buccal mucosa presented itself as a patch about 1.5 by 1 cm. It was sharply marginated and bluish red, with the margins a deeper red than the center. On the margins could be seen on close inspection a number of dilated vessels, appearing as faint red streaks that faded into the normal surrounding area. The center of the patch was for the most part composed of atrophic mucous membrane covered with bluish-white dots or streaks. This picture was typical of lupus erythematosus of the buccal mucosa.

The patient had twelve injections of gold sodium thiosulphate, as a result of which there was almost complete disappearance of the disease involving the lids and considerable improvement of the patch on the buccal mucosa.

DISCUSSION

DR. F. D. WEIDMAN: The appearance is akin to the erythema perstans capitis which I think Kaposi described, the significance of which prognostically was different from that of lupus erythematosus discoides.

DR. J. V. KLAUDER: The erysipelas perstans facii of Kaposi is part of the picture of acute disseminated lupus. Patients with this condition are very ill, confined to bed. The lesions of lupus erythematosus presented by the patient just shown are those of chronic lupus erythematosus and are different from the erysipelatous appearance of the face described by Kaposi.

DR. E. F. CORSON: I think it is rather unique to see a case limited to the eyelid as this case is. I have seen cases—one in which the patient was treated by Dr. Strauss with marked benefit—that showed considerable involvement of the eyelids, but there were discoid marks on the cheek also. There was what amounted to a broad blepharitis but was typically lupus tissue. I should like to ask Dr. Klauder the dosage used in this case.

DR. J. V. KLAUDER: I may say that lupus erythematosus of the eyelids has not been particularly uncommon in the observations of my associates and me at the Wills Eye Hospital. There are five cases under observation, and in one there is involvement of the conjunctiva. The patient just shown received an initial injection of 25 mg. of gold sodium thiosulphate, a second injection of 50 mg. and thereafter consecutive weekly injections of 100 mg.

DR. A. STRAUSS: The cases I have seen that involved the eyelids involved also other parts of the face and body. The blepharitis cleared up long before the condition on the other parts. Have you had this experience also? I have only had two cases of this kind, but the eyelids cleared up with from five to ten injections, whereas the lesions on the other parts of the body lasted much longer.

DR. J. V. KLAUDER: That has not been our experience; there is improvement in all the lesions. Lupus erythematosus of the buccal mucosa is more resistant to therapy than cutaneous chronic lupus.

A CASE OF LICHEN NITIDUS. Presented by DR. J. K. HOWLES for DR. SCHAMBERG.

J. K., a colored boy, aged 10 years, presented a diffuse, pinpoint to pinhead-sized acuminate papular eruption over the trunk and extremities. The papules were closely grouped into patches, with but few areas of normal skin intervening. There was no apparent inflammation. He gave a history of having an ocular condition five years previously suggestive of interstitial keratitis. He received intravenous medication at the Woman's Hospital. He later received some treatment at the Philadelphia General Hospital, and then lapsed. In August, 1930, he was referred to the Graduate Hospital for a Wassermann test. Physical examination by a pediatrician showed no indications of congenital syphilis except adenitis, which was more marked than was to be expected, and some cloudiness of the cornea was detected by the ophthalmologist and diagnosed as interstitial keratitis. Examination of the chest at that time gave negative results. There was no evidence of past tuberculous infection. No stigmas of syphilis were found by the

otorhinolaryngologist. For a year and a half the patient received mixed treatment of bismuth and neoarsphenamine, and after two years' lapse in treatment this eruption developed, which was scattered all over his body. The question came up of ruling out the different forms of lichen. The interesting feature of the condition was that it was not as prevalent around the genitalia as one would expect according to the description given by Pinkus; however, cases of lichen nitidus may occur in unusual locations.

The patient gives a history of no itching or discomfort. The case is unusual and bizarre; incidentally, the family history is negative so far as the Wassermann test is concerned, although the mother had two children who died shortly after birth.

Dr. Weidman has looked at the slide. There is nothing on which one can definitely base a diagnosis of lichen nitidus—no definite tubercles, although they would be hard to find in a small section. Serial sections were recommended.

DISCUSSION

DR. R. GILMAN: I should like to suggest the diagnosis of lichen scrofulosorum.

DR. C. S. WRIGHT: This boy was at one time a patient in my congenital syphilis clinic in the Graduate Hospital, having been sent there from the eye department with a diagnosis of interstitial keratitis. They asked that I treat him in spite of the fact that he had a negative Wassermann reaction. I think that treatment was started with bismuth. At that time the patient had no eruption on his body. This developed after the administration of neoarsphenamine. When I saw him at this meeting I was surprised at the extent of the eruption. On the previous occasion he had a few patches here and there, which I suspected might be due to the arsphenamine, on account of which the treatment was temporarily discontinued. It has become much worse in spite of the stopping of the arsenic therapy, and one must look further for the diagnosis.

DR. F. D. WEIDMAN: The sections do not give any information, and I think that very often they do not because minute lesions, such as the tubercles of lichen nitidus, might be missed in any given section.

DR. J. K. HOWLES: Dr. Wright mentioned treatment with arsenicals. According to the history from the family, the child had intravenous injections, probably of neoarsphenamine, weekly over a period of two years at the Women's Hospital, and there was no eruption on the skin when he came for examination. Because of the lack of spinous lesions, the tendency toward isolation of the papules and the fact that there was absence of parafollicular structure, it was thought that lichen scrofulosorum could be ruled out, considering that the child gained weight rapidly and that there was no evidence of tuberculous lesions and no history of tuberculosis in the family.

DR. V. C. GARNER: There are grouped follicular lesions resembling gooseflesh; I think that the condition is lichen scrofulosorum.

A CASE OF EPIDERMOLYSIS BULLOSA. Presented by DR. R. GILMAN.

N. S., a colored man, aged 49, was admitted to the Philadelphia General Hospital on Sept. 4, 1931, with a bullous eruption of the arms, hands, legs and feet. There had been an occasional bulla or erosion in the mouth. On examination numerous superficial scars were found, particularly covering the shins, ankles and elbows.

The patient gave a history of having had the eruption for "more than 20 years," and said that he was bothered mainly with itching and soreness after the blisters broke. He could produce lesions by self-trauma. He has also had both syphilis and gonorrhea, and has had treatment. At the time of presentation the Wassermann reaction both of the blood and of the spinal fluid was negative. Dr.

Isaac Pels of Baltimore reported a reading of 71 per cent for the Pels-Macht phytopharmacologic test. A month after his admission a typical thoracic herpes zoster developed, which followed the usual course and has since involuted.

A Case of Extensive Gummatous Syphilid. Presented by Dr. R. Gilman.

M. B., a man, aged 49, a native of Hungary, was admitted to the Philadelphia General Hospital on Oct. 13, 1931. On admission he presented on the back, chest and forehead an extensive and symmetrical annular papular, ulcerative and rupial eruption associated with beginning scarring and atrophy. On the left arm were white scars of old burns, and on both shins large annular pigmented scars of fifteen years' duration. He gave a history of having had his present eruption two months. Two years before he had had a penile lesion which left a markedly deformed and scarred glans and shaft suggesting a severe chancroidal involvement. The left testicle was enlarged and painless. No lesions of the mucous membrane were found. The epitrochlears were both palpable. The Wassermann reaction of the blood was plus 4; examination of the spinal fluid gave negative results.

After the patient's admission to the hospital, where he was treated solely with mercury and iodides, the eruption improved considerably. At the time of presentation there were no rupial crusts and the ulcerations were healed.

The particularly interesting features were the widespread involvement, the symmetry and the rapid onset of a superficial gummatosis. The best evidence in favor of a chronological placement of the present eruption appeared to be the occurrence of the syphilitic scars on the shin, which the patient said were at least fifteen years old.

DISCUSSION

Dr. F. D. Weidman: There was some doubt when the patient first was seen as to how to classify the dermatosis. Certain features seemed to make it look like a late secondary syphiloderm and certain other features contrary to the common, like an ulcerative tertiary syphiloderm, but I think that the history eventually made it apparent that he had other lesions that were of many years' duration. Nevertheless, some of the lesions, when he first came to the hospital, were crustaceous—the appearance being as close to that of an oyster-shell as I have ever seen in such lesions—which certainly seems indicative of late secondary formations that turned out to be tertiary syphiloderm.

The section under the microscope does not show the classic histology of gumma, as might be expected when there is such a cleancut, unequivocal example of clinical gummatous syphiloderm. I think it is because the particular lesion selected was not in the fully developed state—it was probably involuting. That raises a practical point. A great deal of care must be exercised in the selection of the lesion for histologic examination. It is better to examine a number of lesions if there is any doubt.

In regard to the case presented as a case of epidermolysis bullosa, I think that two or three question marks ought to be put after that classification. I do not know what the condition is. The patient states that violent traumatism will cause these blisters to "raise." We have bruised his skin and watched the position and yet the bullae have not developed, though he has in a spectacular way demonstrated how his skin in toto can be twisted off. He takes it in his finger and a little disk of the skin will come off perfectly clean from the underlying subcutaneous tissue. It looks as though there was some vice of the tissue that binds the true skin to the underlying parts. That would refer the condition to epidermolysis bullosa; yet the traumatic phases are not those that are usually found in epidermolysis bullosa. If it is this condition, it must be a borderline case.

A Case of Syringoma. Presented by Dr. Pillsbury for Dr. J. H. Stokes.

A woman 39 years of age presented a symptomless papular dermatosis of twelve years' duration. The eruption occurred on the front of the thorax, the upper part of the shoulders, the neck and the sides of the face. There was very little on the back. It consisted of pea-sized, fairly firm light brown papules.

DISCUSSION

DR. R. GILMAN: Did Dr. Weidman see anything in the sections accounting for the yellowish color of the lesions in this patient?

DR. F. D. WEIDMAN: I did not pay close enough attention to notice the yellow sheen of these lesions. I can only theorize on the cause for the yellow color. For instance, sweat secretion is not purely salt and water, but also fat; I dare say that would explain the yellow color.

A CASE FOR DIAGNOSIS. Presented by DR. E. F. CORSON.

M. H., an Irish cook, aged 57 years, presented an eruption confined to the exposed V-shaped area of the neck and the back, which has been present since some time in the summer of 1931, when she was in Maine. She ascribed it to the fact that she was quite sunburned when it appeared. She was not sure that the white areas appeared before the red ones, but she thought so. She had no subjective symptoms. She had not sought treatment until the day before presentation, when she went to the Jefferson Skin Dispensary. The white areas were somewhat infiltrated. They presented a contrast in the red border and at first glance one would think of morphea, since the condition occurred in a region frequently the site of that disease. On looking closely one could see instead of a smooth, waxy surface, a rather rough and scaly one, and there were a number of white, follicular mouths on the patches. Probably the most typical ones were those over the clavicle, and two or three small ones at the back of the neck. Some atrophic, possibly telangiectatic skin extended along the spine as far as the waist.

DISCUSSION

DR. J. V. KLAUDER: I suggest that the lesions on the neck are lichen planus atrophicus.

DR. F. D. WEIDMAN: I thought of pseudoxanthoma elasticum or some kindred condition. But of course the skin over such areas is absolutely normal, and the scaling makes one have recourse to other diagnosis. With minute depressions and white spots, knowing what we do of Jadassohn's white spot disease, if we can rule out morphea (as Dr. Corson has done) there is only one other condition, namely lichen planus.

DR. V. C. GARNER: Does the condition conform to Wise and Shelmire's chronic lichen planus sclerosus.

A CASE OF PITYRIASIS LICHENOIDES ET VARIOLIFORMIS ACUTA. Presented by DR. BUTTERWORTH for DR. J. V. KLAUDER.

S. S., a Jewish boy, aged 12 years, seen at the Misericordia Hospital, presented an eruption that began on his arms about October 1 and gradually spread to his body and thighs. The eruption consisted of macules and papules, but no vesicles were found. Some of the papules had necrotic centers, while others were flat and showed a definite violaceous sheen. Many presented a collarette of scales. The eruption was more marked on the flexures involving particularly the neck, front of the trunk, arms, thighs and buttocks, while the shoulders were comparatively free. There was a small red macule on the roof of his mouth. Many of the lesions had disappeared, leaving areas of hyperpigmentation or apigmentation. There was no adenopathy.

There were no itching or other systemic complaints. Prior to the appearance of the eruption the patient had not taken any medicine for at least two weeks.

The patient had vernal conjunctivitis which had been recurring for four years.

DISCUSSION

DR. A. STRAUSS: I agree with the diagnosis. The age of the patient is the unusual feature; he is rather young.

A Case of Lichen Planus. Presented by Dr. Pillsbury for Dr. J. H. Stokes.

A colored boy, 11 years old, presented a pruritic papular eruption of fourteen weeks' duration. The eruption was distributed over the trunk, arms and thighs. It consisted of small, white, flat-topped umbilicated papules and two large patches the size of a dollar with violaceous sheen, considerable scaling and lichenification. The case was of particular interest in that my associates and I had been able to observe the patient for eight weeks. At first he presented only the white, flat papules distributed over the upper part of the arms and the trunk. Photographs were taken at that time. The section showed a fairly typical pathologic picture of lichen planus, with several rather exceptional features that I should like to have Dr. Weidman discuss. Laboratory tests gave entirely negative results. There was a factitial lesion on the right forearm.

DISCUSSION

Dr. F. D. Weidman: I agree with the diagnosis. I would simply state that the sections are quite characteristic of lichen planus, the only thing causing special comment being the fibrous quality of the cells intermixed with the round cell infiltrate. Of course that prompts queries as to the age of the process; this is contingent on the age of the lesion, which was estimated as between four and six weeks. If that estimate was valid, the fibrous hyperplasia developed promptly.

A Case of Acrodermatitis Perstans of Hallopeau, Benefited by Autogenous Staphylococus Aureus Filtrate Therapy. Presented by Dr. J. V. Klauder.

A white woman, aged 32, was previously shown before this society (Arch. Dermat. & Syph. **14**:612 [Nov.] 1926). The disease involved almost all of the fingers; it has persisted, despite a variety of treatment, for fifteen years. The patient is now shown because of considerable improvement, with disappearance of the disease in some finger-ends. This improvement was attributed to the administration of a filtrate made from a culture of Staphylococcus aureus obtained from some of the pustules; 0.05 cc. of this filtrate, injected subcutaneously, produced a severe local and constitutional reaction. This dose was gradually increased until the patient had received eight injections. On several former occasions the content of the pustules was cultured, but no organisms were obtained. On one occasion, however, Staphylococcus aureus was obtained, and a filtrate was administered which did not produce local or constitutional reaction and was without clinical effect. It would therefore appear that the offending organism has been isolated.

NEW YORK ACADEMY OF MEDICINE, SECTION OF DERMATOLOGY AND SYPHILIS

Leo Spiegel, M.D., *Secretary*

Regular Meeting, Nov. 9, 1931

Edward R. Maloney, M.D., *Acting Chairman*

Psoriasis in a Negro. Presented by Dr. W. E. Abramowitz.

A. G., a Negro, aged 35, born in the British West Indies, had been a resident of the United States for eleven years; he was a butler and houseman. He stated that his great grandfather was said to have been a white man. He was from the New York Post-Graduate Clinic.

The patient had had his condition for at least five years. The lesions, he stated, first appeared on the scalp, and from there gradually spread over the entire body. He complained that the lesions scaled easily and were at times pruritic. No one else in the family had been similarly affected.

At the time of admission the patient presented multiple, sharply defined and circumscribed, isolated and coalesced patches with circular and serpiginous outlines. The individual lesions exhibited depigmented centers and slightly raised borders, the latter being considerably more inflamed than the adjacent skin. The borders were covered with scales, which were moderately adherent. The lesions were slightly infiltrated. The center of the lesions suggested atrophy with a slight degree of lichenification.

The biopsy report confirmed the diagnosis of psoriasis. There were no signs of syphilis or of leprosy.

DISCUSSION

DR. W. E. ABRAMOWITZ: The eruption is unusual, showing a remarkable configuration and a rather long duration, without any period of remission. The Klein test for syphilis gave negative results. The report on the Wassermann test has not yet been received. The report on the biopsy showed a picture usually seen in psoriasis.

DR. SIGMUND POLLITZER: There is a superficial resemblance in this case of psoriasis to the serpiginous scaling syphilid so frequently seen in colored people. The Brocq grattage test, however, left no doubt, if any one had entertained any, as to the diagnosis of psoriasis.

A CASE FOR DIAGNOSIS (LUPUS VULGARIS?). Presented by DR. DAVID BLOOM.

G. A., a boy, aged 7, born in the United States, came to the clinic about two months prior to presentation with a lesion on the right ear. The lesion had started as a small spot six years previously following an injury, and had enlarged since then. It consisted of two small pea-sized, almost black, firm nodules on the anterior aspect of the helix, with black, slightly verrucose skin between them. The skin of the concha was somewhat purplish red and telangiectatic, with a few black spots.

On the back of the ear there was an oval lesion 1 by ½ inch (2.5 by 1.27 cm.) in diameter, with a clear center and a border consisting of lentil-sized, brownish-red nodules. This lesion was sensitive to touch.

Biopsy of one of the nodules on the back of the ear was reported as showing chronic, inflammatory, slightly granulomatous tissue. Since the specimen had been taken for biopsy, the pigmentation seemed to have decreased in intensity. The biopsy was done because the lesion on the back of the ear was believed to be lupus vulgaris.

DISCUSSION

DR. DAVID BLOOM: The probable diagnosis is pigmented nevus, possibly melanoma. We presented this case because of the interesting fact in the history that it appeared following an injury and because of the peculiar configuration behind the ear, which made some of us believe it to be lupus vulgaris.

DR. LOUIS TULIPAN: I recall seeing this case several weeks ago, and at that time the patient presented a few nodules back of the ear surrounding an atrophic spot. The nodules were pinkish blue; they seemed to be broken down at the edges, and the entire lesion seemed to be crusted. I though that it was lupus vulgaris on account of the nodules that were broken down and the atrophy in the center.

DERMATITIS MEDICAMENTOSA. Presented by DR. HERMANN FEIT.

B. M., a woman, aged 63, born in Poland, entered the Vanderbilt Clinic on Oct. 27, 1931, complaining of a generalized papular eruption. She stated that she had first noticed a rash on her hands about three weeks before admission.

The rash had quickly spread to the arms, shoulders, upper part of the chest, face, thighs and legs. For the past two years the patient had been receiving radium treatment for ovarian malignancy at the Lebanon and Memorial Hospitals. Since July 25, 1931, the patient had been taking compound acetylsalicylic acid, acetphenetidin and caffeine citrate tablets for the relief of pain, every six hours.

Examination showed an eruption consisting of small, firm, rather shotlike papules scattered over both the flexor and the extensor surfaces of the arms, legs and upper part of the chest. Some of the lesions, which appeared to be the oldest, were slightly umbilicated. Most of the nodules were a shiny pink.

Examination of the blood showed: 72 per cent hemoglobin, 3,800,000 red cells and 6,800 white cells; a differential count showed: polymorphonuclears, 68 per cent, small lymphocytes, 28 per cent, large lymphocytes, 2 per cent, and eosinophils, 2 per cent.

DISCUSSION

DR. W. E. ABRAMOWITZ: Which of three drugs would you incriminate? Was there an outbreak after the ingestion of acetylsalicylic acid, caffeine or acetphenetidin? These drugs constitute the Burroughs Wellcome formula for "empirin."

A CASE FOR DIAGNOSIS (LICHEN PLANUS? MAJOCCHI'S DISEASE?). Presented by DR. PAUL BECHET.

J. L. A., a man, aged 69, stated that an eruption had begun three years previous to presentation, and had not materially extended for at least a year. There were no subjective symptoms. The lesions had been confined entirely to the flexor surface of both forearms, and were absolutely symmetrical. They consisted of perfectly flat, brownish-red to red spots, from 0.5 to 1 mm. in diameter, arranged in annular formation. Here and there were a few small papules. At the upper edge of the patches of eruption were many distended and enlarged arterioles and capillaries, resembling in certain areas "cayenne pepper" spots, and in others a radiodermatitis. The patient, however, had never been exposed to any form of radiant therapy.

DISCUSSION

DR. WALTER JAMES HIGHMAN: There is not much to go by. I thought that the condition suggested the early stages of poikiloderma. Only time will tell whether or not that impression is correct.

DR. A. BENSON CANNON: I think that the case is one of lichen planus because of the involvement of the flexor surfaces of the upper extremities, the annular lesions, the lichenified, shiny, flat-topped, polygonal papules and the brownish pigmentation. I attribute the purpuric appearance of some of the areas to rubbing and scratching. The patient said that the itching was considerable in the beginning of the disease, but had become quite mild.

DR. PAUL BECHET: The patient stated that in three years he had not had the slightest itching; the lesions are entirely confined to the flexor surfaces of both forearms; there is not a single lesion elsewhere; the distribution is absolutely symmetrical; there are telangiectasia and some "cayenne pepper" spots at the periphery of both areas; there are very few papules, and even these are of a strawberry color, and are not violaceous or shiny. All these points are, in my opinion, decidedly against the diagnosis of lichen planus. The condition may be purpura annularis telangiectodes, but I am not sure of that diagnosis—hence the presentation.

MICKULICZ' DISEASE (SYNDROME) IN A CASE OF LYMPHOBLASTOMA WITH SKIN MANIFESTATIONS. Presented by DR. HERMANN FEIT.

A woman, aged 21, had a disease that began in June, 1931. Her eyelids and the glands in front of both ears commenced to swell, but there had been no pains.

In July a nodule appeared on the dorsum of the right hand; it was not painful. Three weeks later she noticed similar nodules on her face, and since then they had appeared all over her body. During the course of the disease she had lost about 20 pounds (9 Kg.). She had not had any chills or fever, and there had been no other systemic reaction other than the loss of weight. About one month prior to presentation she had begun to get hoarse, which was attributed by her to a cold.

The salient feature was enlargement of the lacrimal, parotid, submental, submaxillary, axillary and inguinal lymph glands. There was also a nodular infiltration of the subcutis. The most typical lesion was on the back of the right hand, distal to the styloid radial process. It was of irregular outline, about 8 by 5 mm. in diameter, covered with smooth, yellowish-brown, pseudo-atrophic skin and was hard and painless on palpation.

Roentgenograms of the lungs showed increased hilar shadows, moderate enlargement of the bronchial nodes and a diffuse radial infiltration. A diagnosis of bilateral pneumonitis was rendered by the roentgenologist.

Examination of the blood showed: white cells, 47,000; red cells, 4,080,000; hemoglobin, 60 per cent; color index, 1; the differential count showed: monocytes, 10 per cent, eosinophils, 3 per cent, basophils, 1 per cent, neutrophils, 42 per cent, and lymphocytes, 44 per cent. The Wassermann reaction was negative, but the Klein reaction was reported as 2 plus.

DISCUSSION

DR. HERMANN FEIT: I think that the patient has aleukemic leukemia with infiltrations of the entire skin. If the lesions of the skin are specific or of the nature of a leukemid, the condition has not been definitely settled as yet.

DR. CHARLES WOLF: The patient has nodular tumors on the eyelids which cause drooping of the eyelids and prominence of the eyeballs. She has nodules in the skin which look like nodular leprosy. She also has thickening of the ulnar nerves. In addition, she comes from a section of the country where leprosy is indigenous. She also has a nasal discharge of the soft palate and partial aphonia. Leprosy should be ruled out.

LUPUS ERYTHEMATOSUS. Presented by DR. JOSEPH L. MORSE.

A colored woman, aged 29, from the New York Post-Graduate Clinic, was born in the United States, and had always resided in this country. She had had the condition presented for ten years. The disease had begun on the nose, and then appeared on the fingers. She had never had lesions on any other part of the body. The lesion on the nose had been treated many times with "electricity."

She presented an atrophic area on the bulb of the nose, the result of treatment with the electrocautery. There were no nodules in this area, and the scar was soft. The skin of the terminal half of all the fingers of both hands was atrophic, with erythema and scaling on the tips. Some of the fingers could be bent only with difficulty because of the atrophy. There was dactylitis of several of the fingers, with deformity. There had been no pain and no areas of anesthesia on the fingers or arms.

DISCUSSION

DR. PAUL GROSS: I was asked to see this patient a few months ago at the hospital, and the roentgenogram seemed to be so typical of osteitis tuberculosa cystica (Juengling) that I felt justified in making a diagnosis of sarcoid retrospectively on the scarred lesion.

DR. J. L. MORSE: What is the opinion of the members concerning the lesion on the fingers?

DR. MARION SULZBERGER: I did not see any signs of lupus vulgaris. In retrospect, it is difficult to say whether or not the scarred lesions on the nose were lupus vulgaris. In consideration of osteitis cystica of Juengling, it is much

more likely that the lesions of the nose were sarcoid, that is, the skin lesion regularly seen in combination with cystic lesions of the bones. Sarcoid is combined with lupus erythematosus more often than with lupus vulgaris. It would be interesting to know whether the patient is hyposensitive to tuberculin.

DR. PAUL GROSS: I am sure that the suggestions of Dr. Sulzberger were carried out while the patient was in the hospital, because they are identical with mine.

MONILIASIS. Presented by DR. PAUL GROSS.

E. K., a white woman, aged 45, born in Russia, was first seen in the department of dermatology at the Vanderbilt Clinic on Oct. 21, 1931, with an eruption on the right breast, the mouth, the finger-nails and toe-nails and the toes. The eruption had begun three years previously as an infection of the nails of the right hand. The infection soon spread to the left hand, the toes and then the mouth. Recently, the skin of the right breast had become infected, apparently with the same eruption.

The right ring finger and all the fingers of the left hand showed a low grade paronychial infection, with definite changes in the nails. The nails showed a yellowish discoloration and brittleness. The toes were involved by a sharply outlined, exfoliative, moist process on all their surfaces. Under the right breast there was a dollar-sized, dark red, macerated area with scaly borders. At the angles of the mouth there were fissured and crusted lesions on an erythematous base, more marked on the right side.

Laboratory work on the cultures had not been reported.

DISCUSSION

DR. PAUL GROSS: I am sorry that the results of the cultures have not been reported as yet, but I think that the clinical picture and the cause of the erosio-interdigitalis, perlèche, chronic paronychia and glossitis are well established. I, at least, have never seen perlèche or glossitis produced by trichophyton fungi.

DR. E. MUSKATBLIT (by invitation): This case is presented with the diagnosis of moniliasis, which is an exact mycologic one, since it points to the fungus monilia as a causative agent. Scrapings have been taken from the lesions, but neither microscopic nor cultural investigations have been made.

The diagnosis is therefore based only on the clinical picture. I think, however, that similar lesions may be due also to other fungi, and I propose to diagnosticate this case simply as a dermatophytosis and onychomycosis until cultures show that Monilia really is present.

DR. PAUL GROSS: The results of the cultures have just been received and are as follows: Monilia albicans from the tongue, perlèche lesion and paronychia; Mycoderma from the stool.

MYCOSIS FUNGOIDES. Presented by DR. EUGENE F. TRAUB.

H. H., a woman, aged 28, was admitted to the New York Skin and Cancer Hospital on Nov. 4, 1931. The family history was irrelevant. The condition had begun in the summer of 1929, while the patient was pregnant. A "welt" had appeared on the abdomen; this itched slightly and then disappeared, leaving a small "scab." When the scab was picked off, a small amount of pus exuded from underneath. The lesion spread, and a superficial ulcer was formed, which enlarged slowly and exuded a thick yellowish pus. The skin cleared up temporarily toward the end of pregnancy, but the sore reappeared following delivery. There were no general symptoms from this, although the area was painful. The patient first saw her family physician after the lesion had progressed to about 4 inches (10.16 cm.) in diameter. He prescribed calendula ointment, which she used for four months without benefit. The area was then cauterized with mercury (?)

without improvement. Because of the lack of progress, she discontinued her visits to the physician and treated herself with a "family" ointment.

In April, 1931, the patient returned to her family physician, and he gave her ultraviolet irradiation twice a week for fifteen weeks. This therapy gave no results, and she again discontinued her visits. Since that time she had used nothing but petrolatum with phenol, which was believed to have been of help. The scaling over the remaining areas of the body started about the same time. The few scattered nodules, as well as the alopecia, were of more recent development. During the past eight months she had lost about 25 pounds (11.3 Kg.), and there had been a general weakness and a loss of appetite. For the past few months she had had dyspnea. The bowels were regular, and there had been no menstrual periods since the birth of the baby. There was no history of roentgen therapy.

The previous history showed excellent health with no serious illness or operations. She had been employed as a stenographer until she had married at the age of 24. Her husband was living and well, and she had had no miscarriages. She had a baby 2 years old, in normal health; its twin had died at birth.

Examination showed an emaciated dyspneic woman of 28 years; she had a tendency to lie so as to immobilize the right side. Examination of the head showed it to be normal. The tonsils were atrophied, and the pharynx was reddened. There was marked venous pulsation of the neck. The heart was enlarged to the left anterior axillary line; the rate was rapid (120 per minute) and regular, and no murmurs were present. The right side of the abdomen could not be palpated owing to the burning pain the patient complained of when touched in that area. The spleen lay one fingerbreadth below the left costal margin.

No laboratory examinations had been made.

SUBSEQUENT NOTE: A subsequent histologic examination revealed the disease to be mycosis fungoides.

DISCUSSION

DR. EUGENE TRAUB: This patient was seen for the first time this morning; hence we have no laboratory data and cannot even state definitely whether or not she received roentgen therapy or ultraviolet irradiation before coming to us. It is our belief, however, that no treatments were given. The diagnosis of mycosis fungoides is, of course, tentative, but was made because the clinical picture presented seems to fit in more nearly with that disease than with any other that suggests itself. The eruption dates back for over two years, and apparently the chief trouble began about the umbilicus and on the lower part of the abdomen. The patient also has erythematous, squamous lesions with slight infiltration scattered over the trunk and extremities generally. The borders of the patches are definitely rounded, and they are brownish red, which factors fit in well with the usual types of premycotic eruptions. In addition, the patient presents a loss of hair on the body as well as on the scalp, where there is a marked thinning almost amounting to entire baldness in some areas. This also is a feature not infrequently seen in cases of mycosis fungoides. Furthermore, the patient presents a number of tiny nodules about the size of a large pea, scattered on the trunk and flank, with a few on the extremities. Lastly, the large peculiar tumor on the abdomen, giving the appearance of an ulcerating mushroom-like lesion, speaks strongly for the same diagnosis. Itching has not been a feature in this case.

DR. WALTER JAMES HIGHMAN: This is a remarkable case. It is almost impossible to say anything sensible about it after a moment's inspection. Two features of the case strike me as important: The patient has scaling dermatosis, though restricted to the axillae, and she has a breaking down infiltration on the abdomen with several smaller similar lesions studded about the body and the upper extremities. I think that the patient consequently (just a point of departure) has to be regarded as presenting some type of malignant process, irrespective of roentgen therapy, starting on the abdomen and generalizing. Whether it is mycosis fungoides, lymphosarcoma or one of the other lymphogranulomas, I do not know, but I believe that it is in this category. I am anxious to hear the laboratory report from the Stuyvesant Square Hospital.

DR. SIGMUND POLLITZER: I looked in vain for something on which to base a tentative diagnosis of mycosis fungoides, which is the one that has been made. I should be glad to have the presenter make a report on this case at the next meeting, after we have had further opportunity to study it.

DR. OSCAR LEVIN: This case impresses me as being very interesting. A positive diagnosis is difficult to make on clinical grounds alone. There are two types of lesions: scattered, infiltrated erythematous patches, and diffuse, tumor-like lesions on the abdomen. I prefer grouping these cases in the general classification of lymphoblastoma. If similar tumor-like lesions had been present on the forehead, it would have resembled what we have often seen in cases of leukemia. However, a biopsy should be performed to prove the diagnosis. From all the evidences that have been presented in this case, I should favor the diagnosis of granuloma fungoides.

DR. EUGENE TRAUB: I agree with Dr. Highman and what he has said about the possibility of malignancy, which we considered, but as we were unfamiliar with any type of malignant process that would make up the entire syndrome presented in this case, we rather favored mycosis fungoides because this seemed to be the one disease that would cover all points presented. The question of a lymphoblastoma was thought of, but this seemed an even less likely possibility than a malignant condition. I wish to call Dr. Pollitzer's attention to the fact that mycosis fungoides not infrequently presents its first tumor on the lower part of the abdominal wall. While in the clinic of Dr. Wile at Ann Arbor, Mich., I saw a number of such patients, and last year I presented a case before the New York Dermatological Society. This patient, strange to say, presented, as did the others, the first tumor on the lower part of the abdominal wall, and possibly for this reason the process had existed for a number of years without the correct diagnosis having been made. Whether this case turns out to be one of mycosis fungoides or not, certainly the clinical picture presented by the erythematous, squamous lesions with infiltration, the peculiar loss of hair, the small nodular lesions and the large tumor on the lower part of the abdomen are all classic points clinically in favor of a diagnosis of mycosis fungoides.

A CASE FOR DIAGNOSIS (DERMATITIS HERPETIFORMIS?). Presented by DR. S. M. PECK.

H. D., a boy, aged 5½ years, the youngest of four children, had been admitted to the Mount Sinai Hospital on July 30, 1931, with a bullous eruption of two weeks' duration. The eruption had begun as small vesicles on both legs above the ankles. The vesicles rapidly increased in number, spreading upward to the extensor surfaces of the thighs and the lower part of the abdomen. They began as pinhead vesicles and then rapidly enlarged to bullae of 1.5 cm. These soon ruptured, leaving a red, raw area that became covered with a crust. On healing, they left a pigmented spot but no atrophy. Six weeks before admission he had been vaccinated. There had been no diarrhea, vomiting, joint pains or purpura associated with the onset of the eruption.

On admission the patient presented various sized, vesicular lesions on a nonerythematous base; a number of the bullae had ruptured and were covered with crusts. Such bullous lesions were seen on the extensor surfaces of the legs and thighs, on both shoulders and a few on the face. The diagnosis was bullous erythema multiforme.

Three days after admission, the patient had a temperature of 104 F., which was soon followed by a generalized morbilliform eruption. There were no herpes and no Koplik spots. The lungs showed some involvement in the posterior lobes.

The blood count showed: 4,800 white cells, 85 per cent polymorphonuclears and 16 per cent lymphocytes.

The diagnosis was "German measles."

No history of medication could be elicited to account for the eruption.

On Aug. 5, 1931, the eruption had practically disappeared and the temperature was normal. The bullous eruption was unchanged and appeared not at all affected by the acute attack. He presented himself in the outpatient department on September 14 with a bullous eruption of the same character as that previously

described, in both axillae, on the elbow and knee flexors and in the inguinal regions. The lesions at that time showed no real tendency to grouping. There was no Nikolski sign; no vesicles could be elicited on trauma, and the potassium iodide test for dermatitis herpetiformis gave negative results. At that time there was no itching associated with the lesions, and no history of itching could be clearly elicited.

DISCUSSION

DR. MARION SULZBERGER: When questioned, this patient's mother brought out the fact that the patient had been vaccinated two weeks before the lesions appeared. Does not Dr. Peck think that there might be some relationship between the lesions and that fact?

DR. W. E. ABRAMOWITZ: I also obtained a history of vaccination shortly before the eruption appeared, and I should be inclined to class this case among those of pemphigoid eruptions following vaccination, which have been described by some authors.

DR. HERMAN GOODMAN: In the patient presented, it is necessary to rule out dermatitis medicamentosa. The mother told me that she had been in the habit of giving the child candy cathartics. Since she has consulted her physician, she has employed milk of magnesia. The history of vaccination preceding the first appearance of the bullous eruption is in favor of a postvaccination, pemphigus-like eruption.

DR. LOUIS TULIPAN: This is the third case of this kind following vaccination that I have seen in the past two years. In fact, one could compare it to a chicken-pox eruption. The patients have vesicles that appear the same as those in the early stages of varicella. I think that it is probably some toxic eruption due to vaccination.

DR. WALTER JAMES HIGHMAN: I should like to tear a leaf out of Dr. Goldenberg's book and caution some speakers against the post hoc propter hoc fallacy. Anywhere from two days to six months after vaccination, all kinds of diseases may occur in all sorts of people. I do not believe that much weight should be laid on so remote a cause and effect. This patient has clinically what is called Duhring's disease. Whether it is Duhring's disease will depend on the clinical course. For want of a better conception and in order not to have the point of view from which this case is regarded prevail, I think that it is proper to regard it as Duhring's disease. There is danger in such loose talk about vaccination as the discussion exhibited. For the moment, nothing in the history of this patient indicates any relationship between the vaccination and the long delayed, subsequent eruption. If he had fallen down stairs six weeks after vaccination and broken his neck, it would be just as reasonable to ascribe the accident to vaccination as it is to ascribe the present eruption to it.

DR. SAMUEL PECK: I was careful to note in the history that the patient had been vaccinated six weeks prior to the outbreak of his eruption. It is my opinion that the most likely diagnosis is dermatitis herpetiformis. I must admit that I did not consider that there was any relation between the present eruption and the vaccination. It seems to me that it appeared much too late and persisted too long for such a correlation.

A CASE FOR DIAGNOSIS (DERMATITIS MEDICAMENTOSA?). Presented by DR. BOLESLAW LAPOWSKI.

H. L., a woman, aged 38, married, stated that she had been taking various phenolphthalein preparations and also acetylsalicylic acid and headache powders during the sixteen years prior to presentation, but since her appearance at the Good Samaritan Hospital dispensary in July, 1931, all these medicaments were discontinued.

Her present trouble had commenced seven months prior to presentation, with a "pimple" on the upper part of the left cheek. Mercurochrome-220 soluble and tincture of iodine had been applied, and the lesion gradually spread so that when she was first observed at the Good Samaritan dispensary about five months before

presentation she showed a dollar-sized, sharply outlined, superficial erosion on the left upper anterior portion of the face, just below the eye. Three weeks later, abrasions within the mouth, especially on the right inner cheek, appeared; these abrasions were surrounded with a dark red border and some showed whitish pellicles.

Gradually, at various periods since then, red, noninfiltrated, millet to pea-sized spots developed a little distance away from the affected patch. The epidermis could be easily detached, exposing a moist, red surface. The spots would increase in size and eventually fuse with the main lesion, so that the original patch grew not only by its own extension, but also by the union with that new lesion along its border. The millet-sized, red, flat, disseminated lesions in the mouth eventually involved the pharynx, palate, pillars and inner surfaces of the cheeks. During the latter part of September, three weekly injections of neoarsphenamine (0.45 Gm.) were administered, but had to be discontinued owing to the rather severe reactions that followed (generalized erythema, chills and fever); the lesions on the mucous membranes improved greatly and gradually disappeared. At that time, a millet-sized vesicle with no red border, which later presented a denuded surface, similar to the other lesion, appeared on the cheek.

Examination of all the upper half of the left cheek showed one large patch on the anterior surface, involving the adjacent half of the nose to the medial line, which was oozing and sharply outlined; it was not infiltrated or elevated, and was covered with a thin cracked crust which could be easily removed, leaving a raw, red, oozing surface. Adjacent to the lower border were a few pea-sized, moist, oozing, partly crusted lesions, which, though not definitely bullous, gave a suggestion of their having been so. On the right cheek was a pea-sized, erythematous spot which could easily be rubbed off (this originally was a similar red, oozing, millet-sized spot, as were those of the left cheek). There were no lesions of the mucous membrane at this time. The lesions on the mucous membranes during the presenter's observation disappeared on and off, sometimes disappearing completely, without leaving any marks; however, a slight redness always remained. The other accessible mucous membranes and the rest of the skin were normal in appearance.

Treatment consisted of the mildest applications for five weeks prior to presentation.

DISCUSSION

DR. WALTER JAMES HIGHMAN: There is no idea that Dr. Lapowski, in presenting this case, has not covered the ground to be thought of, but with the history it strikes me, perhaps, considering the infiltrated borders of the lesions and their eczematous character, that this might be an example of extramammary Paget's disease, starting on the nose.

DR. SIGMUND POLLITZER: Has this patient had a therapeutic test? The lesion is like those caused by antipyrine: large erythematous, vesiculobullous areas.

DR. BOLESLAW LAPOWSKI: There is no infiltration; the lesions in the mouth and their quick disappearance do not speak for a malignant process.

LEUKOKERATOSIS OF THE MOUTH. Presented by DR. BOLESLAW LAPOWSKI.

B. K., a women, aged 28, single, had never smoked until recently, and that practice had been discontinued. There had been no syphilitic history, and a Wassermann reaction was negative. Her present trouble had begun about three and one-half years prior to presentation, with white, elevated lines on the inside of the cheeks opposite the junction of the upper and lower teeth when closed. One and a half years later she had received her first treatment for this condition, which consisted of intravenous injections in conjunction with a mouth wash, in a local institution. Six months later she had received more intravenous injections and also had had the lesions on the inner side of the cheeks desiccated at another institution. She had had no treatment in 1931. The patient claimed that almost any treatment improved the condition temporarily, but it always recurred. When

seen for the first time, about three weeks prior to presentation, the lesions were found to be limited to the inner side of the cheeks, the tongue and the lips.

As presented, she showed the following: On the locations specified were patches composed of raised conglomerated areas. On the cheeks these whitish, pointed lesions were irregularly outlined with streaks and bands and irregularly shaped spots, and were covered with an adherent, dense, nontransparent, projecting pellicle. The tongue showed a flattening of the papillae, was smooth and had a bluish color. On the lateral aspects of the tongue, the lesions were like those on the cheeks, but were not as pronounced. The upper and lower lips showed individual white points, profusely scattered. On the raised pellicle of the cheeks, separated raised spots could also be seen. There was no infiltration or ulceration. No other parts of the skin or mucous membranes were involved.

DISCUSSION

Dr. Max Scheer: This patient was under my observation on and off for several years. About one and a half or two years ago I presented her before the Manhattan Dermatological Society with a tentative diagnosis of (1) fungous infection (Monilia) and (2) lichen planus.

She gave a history of the formation of a white pellicle on the mucosa of the cheeks, which pellicle could be easily pealed off. The patient did not have syphilis and did not use tobacco. This, together with the situation (far behind the angle of the mouth) and the appearance, seemed to exclude leukokeratosis. Fungous examination (smears and culture), made by Dr. Lewis, gave negative results.

The appearance when the patient was last seen by me about one and a half years ago and that as presented were almost identical: grayish-white spots and striate and curved linear lesions inclosing islands of apparently normal mucosa, suggesting the diagnosis of lichen planus, which, as is well known, may be present on the mucous membranes for an indefinite period without cutaneous lesions. Moreover, lichen planus of the mouth, while it may disappear spontaneously, often persists even when all the cutaneous lesions have vanished after treatment.

Dr. Eugene Traub: I agree with Dr. Scheer that this is a case of lichen planus for the reasons he stated. In this type of case, a microscopic examination might be of help.

Dr. Boleslaw Lapowski: When this patient came to the Good Samaritan Hospital dispensary for the first time about two weeks ago, she had a flat, thick pellicle with a raised edge on the inner side of both cheeks. One could take the edge and lift it up. The tongue and lips were normal, and there was neither hardness nor ulceration. Under treatment with compound solution of iodine the pellicle came off, leaving a smooth whitish surface. No lichen lesions or any arrangement of lichen lesions could be seen.

Lupus Erythematosus (Treated with Nickel Chloride). Presented by Dr. Eugene Traub.

A man, aged 35, had a lesion typical of lupus erythematosus on the nose of three years' duration. No previous treatment had been received. Treatment with local intracutaneous injections of 0.5 per cent nickel chloride solution was begun on Feb. 26, 1931. From that date to August 3, the patient had been given fifteen injections, each averaging 4 mg. of nickel chloride. The patient had received no injections since that time.

DISCUSSION

Dr. Eugene Traub: Dr. Monash is in a better position to give the exact details regarding this case, as he has been treating the patient. In this instance, nickel chloride instead of gold and sodium thiosulphate solution was used intradermally. The result as shown by the patient certainly is gratifying when compared with the photograph of the original condition, which accompanied the presentation.

DR. SAMUEL MONASH: After having obtained some good results in the treatment of patients with lupus erythematosus with local intracutaneous injections of a gold compound, we began to use other metals to determine whether the curvative action was specific for gold compounds alone. This patient was treated with local intracutaneous injections of a 0.5 per cent solution of nickel chloride, which resulted in complete involution of the lesions. We have also cleared up the condition with local injections of 0.1 per cent zinc sulphate solution. It is probable, therefore, that the action of gold compounds locally is not due to their specificity, but most likely to the local reaction produced by the injection.

DR. MARION SULZBERGER: When I first saw the patients treated with gold compounds locally, I brought up two points: the possibility of sensitization to the compound and the possibility that the effect of local injections may have been nonspecific, a simpler destruction, such as is obtained in using carbon dioxide snow in the treatment for lupus erythematosus. I treated a patient with lupus erythematosus with local injections of a gold compound, according to Dr. Traub and Dr. Monash's method. The man complained of having a large swelling of the entire side of the face. It was not painful, but the site remained swollen for several days. Did the presenters notice any such effects in their cases?

DR. EUGENE TRAUB: I do not believe that Dr. Sulzberger's question can be answered yet. While the intracutaneous method has been exceedingly satisfactory in some cases, it does not measure up to our early expectations. We made no extravagant claims for this method, and certainly the results achieved in some cases have warranted us proceeding with the treatment, though in some cases we have had no great improvement. As the same may be said of other methods of treatment for lupus erythematosus, it simmers down to our having devised another plan of attack for this very rebellious disease rather than having found a cure-all. Most of our patients have been treated with gold and sodium thiosulphate. The swelling Dr. Sulzberger speaks of occurred in some of our early cases, and we controlled it by using a cold wet compress immediately. As we now use a more dilute solution, we rarely have any trouble in this regard.

DR. W. E. ABRAMOWITZ: Soon after Dr. Traub and Dr. Monash presented patients with lupus erythematosus who were treated with local injections of gold compounds, we decided to try their method at the Post-Graduate Hospital. The results were disappointing. Dr. McKenna advocates the local use of a colloidal bismuth ointment. The results obtained thus far have been encouraging, and we hope to report on this method as soon as sufficient material has been collected.

MYCOSIS FUNGOIDES (?). Presented by DR. BOLESLAW LAPOWSKI.

D. S., a woman, aged 54, married, had nothing of importance in her past medical history. Her present trouble had begun about six years prior to presentation with a nonitching eruption on both legs. Gradually the eruption had progressed, and in eighteen months it involved the entire body. She first appeared at the Good Samaritan Hospital two years prior to presentation, or four weeks after the onset of the eruption. At that time the eruption was generalized and consisted of noninfiltrated, erythematous patches of various shapes and sizes, covered with fine scales. On a number of locations (especially the breasts) were pinhead-sized lesions, not elevated and dark red, which did not disappear under pressure. There was very little itching. Six months prior to presentation, some of the large patches had become lichenoid and had assumed peculiar configurations, and some of them had become infiltrated. At about the same time, the left forearm showed a large, dollar-sized, elevated, erythematous, crusted area, which, in the course of time, gradually increased in size and severity. At about the same time, a similar but smaller ulcerated lesion developed over the left clavicular region. This lesion healed in about two months. The breasts showed an exaggeration of the minute telangiectatic points noted previously, and they also assumed a network-like appearance.

When presented, the patient showed the following types of lesions: (1) many erythematous, scaly patches of various shapes and sizes, some infiltrated, others not, over the trunk and extremities; (2) miliary, atrophic points and pigmentary telangiectasia, and (3) many scattered ulcerations of the body, face, breasts, etc. These were of various shapes, sizes and different degrees of severity. Here and there were scars, the result of healed lesions.

DISCUSSION

DR. WALTER JAMES HIGHMAN: The patient had three types of lesions: (1) infiltrated plaques on the shoulder girdle and lower down, (2) poikilodermatous lesions and (3) distinct crusted infiltrations, some on the back, chest and arms. Poikiloderma is as vague a condition as Dr. Lapowski indicated it to be. Roughly speaking, the first thing that strikes one on seeing a case of poikiloderma is that it looks like roentgen dermatitis. There are scaling, small areas of infiltration and atrophy. This patient had all of these conditions. Poikiloderma, as the literature indicates, has been known to end with lymphosarcoma. It is a question whether this patient has ordinary mycosis fungoides or really poikiloderma, and whether the condition is going to be one of the group that becomes lymphosarcomatous. Whatever these cases of poikiloderma may be, the patient has a major condition of lymphosarcomatosis or mycosis fungoides with aberrant lesions looking like poikiloderma.

DR. HERMAN GOLDENBERG: I agree with Dr. Lapowski that poikiloderma is not a clinical entity but an end-process. I disagree with him in regard to the case of premycotic lichen planus that he mentioned. The condition of the patient presented bore no resemblance to poikiloderma and showed at no time telangiectasias or atrophy, but was a clear case of universal lichen planus followed by the tumor stage of mycosis fungoides.

DR. BOLESLAW LAPOWSKI: There is not a single case in the whole literature in which poikiloderma and lymphosarcoma are connected. There are about four cases that have come to autopsy; one was a case of carcinoma of the pancreas. Microscopically, there is nothing pathognomonic to be seen in poikiloderma.

DR. OSCAR LEVIN: As Dr. Lapowski pointed out, the signs were only suggestive of poikiloderma. This patient does not show the usual evidences of this condition, which is essentially a disease of the blood vessels. Besides the patches there are definite, infiltrated, tumor-like lesions with ulceration on the upper extremities, which are suggestive of a neoplastic condition due to disease in the blood-forming organs. A positive diagnosis, however, may be proved by examination of tissue removed for biopsy.

CHANCRE OF THE LIP AND FOREHEAD. Presented by DR. EUGENE TRAUB.

This case was previously presented before the Section, in October, 1931.

DISCUSSION

DR. A BENSON CANNON: I think that the type of gummous lesion in large measure determines the ease or difficulty with which one is able to demonstrate the presence of spirochetes. I have found that gummatous ulcerations appearing within from two to five years after inadequate treatment are apt to contain many spirochetes, whereas in the sloughing ulceration appearing many years after the infection, it is difficult, if not impossible, to find spirochetes even with the most exacting technic. Only a few weeks ago, a man returned to the Vanderbilt Clinic with a large gummatous lesion on one elbow following a two years' lapse of treatment. We were surprised to find spirochetes in great numbers in three different dark-field examinations of secretion taken from the gumma. While I did not see the patient under discussion, I do not believe that the finding of spirochetes in the dark-field examination of the secretion taken from the lesion necessarily makes the case one of chancre.

DR. BOLESLAW LAPOWSKI: The patient was previously treated by Dr. Oulmann, and here is Dr. Oulmann's report: "The patient was seen by me about six weeks ago; at that time she had three lentil-sized cysts; all the lesions were fulgurated. Those cysts had a central white point and were very slightly infiltrated; no glandular nodes were involved; there was no ulceration on the forehead, such as she showed at the time of presentation. The patient was seen once more and presented three ulcerations which had increased in size but not to the extent shown on the night of presentation. I regard the condition as broken down tissue in a syphilitic patient. The lack of glands proves the condition to be a case of gummous syphilis." This report speaks for itself.

DR. ISIDORE ROSEN: The fact that the lesions were treated with electrodesiccation does not rule out multiple chancres. It is possible that they were primary lesions from the start or were subsequently infected with spirochetes. The destruction might account for the unusual features of the case. The fact that the lesions developed in a few days of one another and the finding of numerous spirochetes in all flat lesions speak in favor of primary lesions.

DR. EUGENE TRAUB: Dr. Rosen has summed up well all that can be said. If we accept the laboratory report, there can be little doubt but that we were dealing with a primary lesion. We all know that spirochetes may be found in secondary or late lesions, but it would be unusual to find them in abundance in several lesions of the same patient. Even if we are unwilling to accept the laboratory diagnosis, it is difficult to believe that the eroded papules presented by this patient could be interpreted as gummas or even late secondary lesions. The glands were enlarged to a slight degree, but not to the giant satellite adenitis usually found in extragenital lesions. The Wassermann reaction of the blood was 4 plus. An examination of the spinal fluid gave negative results. Following the rule of our hospital, the patient was turned over to the syphilis department, and I can report only that the lesions promptly disappeared after the administration of one to two injections of arsphenamine.

DR. LEO SPIEGEL: As previously stated, I agree with the remarks of Dr. Rosen and Dr. Fox. The lesion on the lower lip was the initial lesion, which had been cauterized. The pea-sized, depressed scar on the forehead had nothing to do with the present infection. The papule on the upper lip and the other lesions on the forehead were late secondary manifestations.

EXTENSIVE SCLERODERMA IN A MAN. Presented by DR. PAUL BECHET.

M. S., a man, aged 53, stated that his dermatosis had existed only eight months. On inspection, the skin on the arm, entire neck, chest, abdomen and legs was found to be indurated and sclerosed. The disease was most extensive and of unusually rapid development.

XANTHOMA PALPEBRARUM WITH XANTHOMATOUS LESIONS IN A LARGE CONGENITAL NEVUS FLAMMEUS. Presented by DR. PAUL BECHET.

M. R., a woman, aged 39, had had an extensive xanthoma palpebrarum covering most of the lids of both eyes, which had been present for nineteen years. There was an extensive port wine nevus on the arm, which showed throughout its extent the characteristic "chamois skin" yellow of xanthoma. There were no xanthomatous lesions eleswhere. The cholesterol determination by the Bloor method was quite high, namely: whole blood, 258 mg.; serum, 248 mg., and plasma, 375 mg. Chemical analysis of the blood showed: sodium chloride, 495 mg.; sugar, 107.3 mg.; urea nitrogen, 17.1 mg., and uric acid, 1.66 mg.

LEPROSY. Presented by DR. PAUL BECHET.

J. P., a man, aged 25, born in Sicily, came to the United States at the age of 12, and since that time he had never been outside New York state, except for a short stay in Philadelphia. He was positive that he had remained well until

sixteen months previously, when he first noticed a macular eruption on the legs. One year later a subcutaneous thickening of the face, particularly over the forehead, became manifest; this was accompanied by a loss of the eyebrows. Anesthesia was noticeable, particularly about the elbows. There was a thickening of the phalanges, and both ulnar nerves were greatly enlarged. The patient stated that nine years previously (seven and a half years before the appearance of the leprosy) he had had a primary lesion on the penis, with positive blood findings, for which he had received desultory treatment. Several recent Wassermann reactions were positive, as was also a Kahn reaction. A differential blood count showed: hemoglobin, 69 per cent; red cells, 4,440,000; white cells, 12,700; polymorphonuclears, 46 per cent; lymphocytes, 50 per cent, and mononuclears and transitionals, 4 per cent. Pathologic findings confirmed the clinical diagnosis of leprosy.

The interesting points of the case were the antedating syphilitic infection and the fact that the leprosy developed eleven and a half years after the patient left Italy, in which interval of time he had not been outside the state of New York, other than for a short stay in Philadelphia.

TERTIARY SYPHILODERM IN A PATIENT WITH MACULAR ANETODERMIA. Presented by DR. PAUL GROSS.

J. S., a man, aged 28, born in Porto Rico, married, had had his present cutaneous eruption for two months prior to presentation. Eight years previously he had received eight intravenous injections on account of the cutaneous eruption. No blood test was made at that time. The patient was married and had two children, aged 7 and 3. His wife had never had any miscarriages.

On examination, several circinate and serpiginous lesions of small nodular type with superficial ulcerations were found on the dorsum and wrist of the right hand. There was a smaller lesion on the left arm. On the forehead was a dime-sized, infiltrated, bluish-red lesion. On the right cheek was a growth of four small, cherry-sized tumors of chronic inflammatory character with central necrotic crusts.

Examination of the trunk revealed an eruption of lentil-sized macules which presented a distinct cigaret paper-like atrophy. The Wassermann reaction had not as yet been reported.

LEUKONYCHIA-STRIATA (ACQUIRED? OCCUPATIONAL?). Presented by DR. FRED WISE.

J. N., a man, aged 42, a provision clerk, from the New York Post-Graduate Clinic, had had his condition for two years. The finger-nails presented transverse, white striations of varying sizes, many reaching across the nail, others extending only partially across. The nails were slightly dystrophic and showed transverse ridges and depressions. The thumb nails were the least involved of any in the leukonychia process, but they were the most dystrophic. The toe-nails were apparently normal. The patient stated that the white streaks appeared first at the edge and progressed from there to the base of the nail bed. The general health was unaffected.

The patient was a provision clerk and had his hands continually in pickling solutions, saltpeter, etc. The thumbs did not come in contact with the solutions as much as the other fingers.

OCCUPATIONAL DERMATITIS CAUSED BY "RED DEVIL" (A PAINT REMOVER). Presented by DR. HERMANN FEIT.

D., a man, aged 33, born in Switzerland, who had resided for five years in the United States, had always enjoyed good health except for pneumonia, which he had had four years prior to presentation. There was no family history of a skin disease. The patient had worked all the years he had been in the United States in a large concern that dealt with imported embroidery machines. His

job consisted in taking apart, cleaning, washing and painting the machines. Whenever the parts of the machines were blackened by dried oil or dirt, "Red Devil" was used to loosen and soften the grease.

His present eruption had started in the spring of 1930, and made its first appearance on the front of the neck as a red ring where the collar touched his skin, although he never buttoned his collar. A few days later an itchy eruption appeared on both elbow bends in the form of a violet patch. About a fortnight later the neck, the face and the arms became swollen. After he had been treated for a while by a private physician he went to the Post-Graduate Hospital, where he was told that he had a typical industrial poisoning. After that the patient had to appear before the Claim Department of the Department of Labor and also in court, where he was told his case was not a compensation case, despite the fact that his physicians declared it to be such. When the patient first consulted the presenter, he was suffering from an eczema-like eruption on the parts mentioned; he was told to apply a piece of gauze soaked with "Red Devil" on the healthy skin, with the result that was shown at the time of presentation, namely, a second degree burn, erythema and bullae. After getting in touch with the Paint Product Company, the presenter was told that the formula could not be given, nor was it marked on the label. There were fifteen other men in the plant who used the same fluid, and only two more had had a similar eruption, which involved the neck, the arms and also the scalp; the hair had fallen out in great amounts.

LEPROSY. Presented by DR. CHARLES WOLF.

J. E., a man, aged 45, born in Sicily, had been living in the United States for the past twenty-five years. He had been married for seventeen years and had one living child, 12 years old. He had always been healthy until four years prior to presentation, when his private physician made a Wassermann examination of his blood and found the reaction to be positive. The examination had been made at two laboratories. It was at that time that antisyphilitic treatment was administered and given periodically for three years. His subjective complaints had been failing vision and numbness of the fingers.

Physical examination showed that the patient had a chronic superficial punctate keratitis, with pannus that was nontrachomatous, Neurologically, he had sensory disturbances in the glove and stocking areas, viz., hyperesthesia, hypalgesia and thermohyperesthesia. The deep reflexes were normal, and he had no Babinski sign. The pupils were fixed. There were atrophy of the muscles of the hand and trophic changes in the skin of the extremities. There was some thickening in the region of the ulnar nerve. The hair on the outer half of the eyebrows had fallen out. Over the left elbow region there was an oval, reddish-brown, infiltrated plaque, 4 by 6 cm. in diameter, and in the immediate vicinity there were several nodules, varying in size from that of a split pea to that of a pinhead.

An examination of the blood made three weeks prior to presentation gave positive results. A nasal smear had been made, but a report had not been received. The skin of the legs, feet and hands was dusky red, shiny and atrophic, resembling acrodermatitis atrophicans.

PRURIGO AESTIVALIS (?). Presented by DR. PAUL GROSS.

S. R., a white girl, aged 9, was admitted to the Vanderbilt Clinic on Sept. 14, 1931, with a history of an intermittent skin eruption of six years' duration. At about the age of 3, blisters, some clear and some filled with pus, began to appear on the arms and legs. This eruption occurred in January and persisted until June, in spite of the administration of ointments and "injections." About June, the blisters cleared and remained clear until the next winter, when a similar eruption appeared, lasting three or four months. Since that time, the father stated, the patient had had numerous recurrences of the eruption, always located on the extremities until the present attack, which had begun about the middle of August and had persisted; it involved the face and neck, and the trunk to a lesser degree.

The eruption never cleared entirely. The father stated that there were always "little pimples" under the skin which could be seen or felt. When the eruption appeared, it came as small blisters, which were usually clear, although at times purulent, and as they grew larger they contained pus and a redness appeared around them. The symptoms consisted of rather mild itching excepting in very hot weather, and then the lesions itched a great deal. The present attack, which had begun in August, had been the worst. The patient had been to a number of clinics, where she usually received ointments and injections. These helped a little. About five years before presentation she had received "sunlight" treatments twice a week for about six months, and the skin had become almost clear at the end of that time. Other clinics suggested that the patient keep in the sunshine. There was no history of allergic symptoms except that the patient did not like eggs. There were no foci of infection. The general health was excellent.

On examination, the patient showed a markedly discrete and disseminated eruption covering the entire extremities and particularly profuse on the fingers and toes. The beginning lesions appeared to be largely urticarial papules with central vesiculation or vesicles on an erythematous base. Many of the lesions had apparently coalesced to form bullae. They contained either a clear or a purulent exudate. In addition, there were a number of excoriated papules and crusted bullae.

Examination for tinea gave negative results. The blood count showed 13,300 white cells and 3,900,000 red cells; a differential count showed polymorphonuclears, 59 per cent; small lymphocytes, 26 per cent, large lymphocytes, 2 per cent, and eosinophils, 13 per cent.

Skin tests were negative to staphylococcus extract, old tuberculin, Monilia, trichophytin extracts and sixteen foods.

A blood culture of one of the pustules showed gram-positive hemolytic staphylococcus.

A specimen taken from one of the lesions on the left forearm for biopsy, on Oct. 26, 1931, showed a slight, generalized keratosis and a marked acanthosis with edema and infiltration with polymorphonuclears in the prickle cell layer. A multilocular pustule with degeneration of the epithelium extending into the corium was noted. Fibrin and many polymorphonuclears were noted beneath the pustule, and necrosis extended in streaks deeply into the corium. Connective tissue cells were increased. No definite histologic diagnosis could be made (pustular lesion with necrosis of the corium).

During the past five weeks the patient had shown a remarkable improvement. Many of the papules and most of the pustules had disappeared, leaving depigmentation and some scarring. The patient had received a variety of lotions and ointments: sulphur, ammoniated mercury, calamine, mild resorcinol paste, aluminum acetate and the like.

CARCINOMA OF THE BREAST (CANCER EN CUIRASSE). Presented by DR. BOLESLAW LAPOWSKI.

R. K., a woman, aged 52, married, gave no past medical history of importance. The present trouble had started about four years prior to presentation with pain and induration of the left breast and retraction of the nipple. The condition had persisted for eight or nine months before operation was performed. In 1928, amputation of the left breast was performed in a local institution. The pathologic diagnosis was adenocarcinoma. About six or seven weeks following operation, she received one local treatment with radium followed by roentgen treatments over a period of two years, the last one about a year prior to presentation. Two or three weeks after the last roentgen treatment (two years after the amputation), pain developed over the chest associated with pruritus, and gradually small tumors developed. The skin became hard. The patient lost no weight.

When presented, the patient showed a large scar over the left side of the chest, the result of the amputation. The right breast was swollen and hard. Extending completely across the front of the chest, covering the areas of the breast and

extending under the left axilla posteriorly for a short distance was a large infiltrated, red area, which was more or less sharply outlined; surmounting this plaque were many scattered, intracutaneous, subcutaneous or pedunculated nodules, varying in size from that of a pea to that of a dime. The nodules were of a dark red or bluish color, and the skin over them was thin and adherent. They were hard to the touch. Some were surmounted by tiny crusts, which, on removal, showed ulcerations that bled easily. No glands could be felt in the axilla. The left upper extremity was somewhat larger in circumference than the right.

MANHATTAN DERMATOLOGIC SOCIETY

M. B. Parounagian, M.D., *Secretary*

Nov. 10, 1931

George M. MacKee, M.D., *Chairman*

Hydroa Vacciniforme. Presented by Dr. M. B. Parounagian.

A female child, aged 22 months, first observed a day before presentation, had an eruption of thirteen months' duration. The lesions were located mainly on the scalp and a few were on the face; they were most marked on the dorsa of the hands and the lower extremities, including the feet. The trunk was practically free from eruption. Some of the lesions resembled varicella with umbilication. There were a number of pitted scars. The father stated that the patient scratched very much. Since the beginning the lesions had never disappeared entirely. During the summer the condition was worse.

DISCUSSION

Dr. Howard Fox: I am sorry to disagree most emphatically with the presenter. I am sure that this is not a case of hydroa vacciniforme. There are only a few lesions on the face and none on the ears. It is true that there are lesions on the regions exposed to light, but many of them are also on the covered parts of the body. Furthermore, there are only a few superficial scars in place of numerous frank pitted scars. Incidentally, the child is a girl, whereas most cases of hydroa are seen in males. At first glance the eruption suggests scabies, but since no one else in the family is similarly affected and as the location is not exactly that of scabies, I think the case is probably papular urticaria with a good deal of secondary infection.

Dr. Max Scheer: I agree with Dr. Fox, and may add that hydroa vacciniforme is quite rare in females. I think the lesions are prurigo with secondary infection from scratching.

Dr. Frank Fraser: At first I thought this was a case of scabies with pyogenic infection, but after hearing Dr. Fox's discussion, I favor the view that the original lesions were urticarial.

Dr. Benjamin Ochs: I agree with the presenter. About four or five years ago, I presented to this society a case similar to this one, with lesions in the same place as those this child exhibits; the lesions were particularly marked around the elbows, knees and back of the wrists. Also there were lesions on the neck and on the scalp. There were small isolated scars, as we see here. The entire society agreed with me. I followed the case for three years, and the child continued to present the same eruption. I believe that the presenter is right to present this case as hydroa vacciniforme.

Dr. Ludwig Oulmann: I regard this as a case of generalized pyodermia owing to the extensive involvement of the scalp and the scarce and very superficial scarring.

DR. M. B. PAROUNAGIAN: I spent considerable time on this case. The father has taken the child to many physicians and clinics. The condition was treated by various methods. There are three other children in the family and none of them has any skin manifestations. In my opinion that alone rules out scabies. Also, in scabies the location of the lesions is not that in this case. The body is practically free from eruption, and most of the lesions appear on the dorsal surface of the hands. The father told me that at times the patient is better and at other times she is worse. Hydroa vacciniforme is the only diagnosis I can make. I shall follow this case up and present the patient again for your consideration.

TUBERCULOSIS VERRUCOSA CUTIS. Presented by DR. FRED WISE.

A man, aged 40, presented a condition of one and one-half years' duration. He is now being treated for pulmonary tuberculosis at Liberty, New York. About one and one-half years before presentation he injured the left little finger and immediately placed the finger in his mouth. At that time a lesion developed which has never cleared up, but on the contrary progressed in size. He now presents on the ulnar surface of the right little finger a patch of erythema the size of a fifty cent piece with scaling, fissuring and many small verrucose papules. There is a slight limitation of movement in the joint but no other disturbance. The case was presented to show a strong possibility of auto-inoculation of tuberculosis from the patient's sputum. The patient was first seen at the clinic today so that a biopsy, injections of tuberculin and guinea-pig inoculations were not performed.

EXTENSIVE GUMMATOUS ULCERATION OF RIGHT ARM WITH GREAT DEFORMITY. Presented by DR. M. B. PAROUNAGIAN.

M. B., a man, aged 38, who said that he had never had a venereal disease, was referred to the Bellevue Hospital Clinic on Sept. 23, 1931, on account of a 4 plus Wassermann reaction and a very extensive ulceration of the right arm which had caused considerable deformity. Various diagnoses had been made, including actinomycosis, and an amputation had been decided on. At the strong urging on the part of the presenter, the operation was postponed and antisyphilitic treatment was instituted.

Since Sept. 28, 1931, to Nov. 9, 1931, the patient had received six injections of mercuric salicylate, two of silver and three of neoarsphenamine with marked improvement. The numerous gummatous ulcerations healed satisfactorily, which made amputation unnecessary. The duration of his ailment was said to be eleven years. He had never consulted a physician before. The patient dressed the wound himself.

DISCUSSION

DR. FRANK FRASER: I agree with the diagnosis as presented.

DR. ISADORE ROSEN: It seems incredible that in this age a patient as intelligent as this man seems should neglect a condition like this and let it progress for eleven years without consulting a physician.

DR. FRED WISE: I think that the reason he did not consult a physician for eleven years is that his mental condition has deteriorated as a result of his old syphilitic infection.

DR. M. B. PAROUNAGIAN. I agree with Dr. Wise that perhaps the man is not mentally normal or else he would not have neglected his condition like this. I think that he has congenital syphilis. He has a 4 plus Wassermann reaction.

ATYPICAL MOLLUSCUM CONTAGIOSUM. Presented by DR. PAUL BECHET.

R. W., a white woman, aged 46, stated that the lesions began only six weeks previous to presentation. On the lateral aspects of the trunk and on the back were several hundred, rather closely aggregated, bright red papules, which closely resembled a folliculitis. Several of the lesions were frankly pustular, adding to

the difficulty of the diagnosis. On close inspection, however, each of the lesions was button-like in appearance and presented the usual depression, and in the non-infected ones the characteristic thick white contents could be expressed; even the inflamed ones presented the depressed center and gelatinous contents. The individual lesions were therefore typical, but the vast number of them, their strawberry red color, their arrangement in sheets and the advent of pus were decidedly atypical.

DISCUSSION

DR. HOWARD FOX: The unusual redness and lack of the definite appearance of molluscum contagiosum made it hard at first glance to accept this diagnosis. Careful examination showed a few typical lesions, however. I would treat the eruption by a sharp curet. I have used the x-rays experimentally in two cases with success, the condition in both clearing up after seven or eight fractional doses at weekly intervals. One of these patients had about one hundred and fifty lesions on the thighs.

DR. M. B. PAROUNAGIAN: I absolutely disagree with the diagnosis and would offer the following suggestions: I think that the patient should have a blood count made and see if there is a possibility of leukemia. I have seen certain skin manifestations in leukemia that I think should be excluded. These lesions certainly do not look like molluscum contagiosum to me.

DR. FRED WISE: I agree with the diagnosis, and I suggest that the ointment of ammoniated mercury be given a trial.

DR. PAUL BECHET: I did not at first consider the diagnosis of molluscum contagiosum; it was only after prolonged examination that I found lesions that so strongly suggested this diagnosis that it had to be accepted. Before the days of endothermy I used to puncture the lesions with a toothpick soaked in phenol. Dr. Wise is correct in advising the use of ammoniated mercury, and I shall follow his advice, but the simplest method of all is electrocoagulation; it takes only a few seconds to destroy a lesion, and if carefully used, leaves no scars.

LICHEN PLANUS DIFFUSUS. Presented by DR. FRED WISE.

M. G., a woman, married, aged 53, presented herself at the Post-Graduate Clinic on Nov. 5, 1931, for the treatment of an eruption on the hands and feet. The duration was five months.

The palms and soles exhibited a more or less uniform, lichenified keratoderma, with a peculiar violaceous color. The back of the hands and lateral surfaces of the feet were studded with scattered lichen planus papules of typical color and configuration. On the anterior surface of the left wrist was a violaceous discoid patch, apparently the result of fusion of papules.

The diffuse keratoderma was interpreted as resulting from the fusion of deep seated lichen planus papules, causing a uniform thickening and reddening of the palms.

A histologic examination of one of the outlying papules did not reveal the changes of true lichen planus, but rather of ordinary lichenification. The mucosae of the mouth were unaffected.

DISCUSSION

DR. LUDWIG OULMAN: The location on the palms and soles bring the possibility of an epidermophytosis into consideration with an accompanying lichen trychophyticus.

DR. HOWARD FOX: I agree with the diagnosis of lichen planus of the back of the hands, though I do not feel sure about the appearance of the palms. They certainly showed no evidence of radiodermatitis such as telangiectasia.

DR. ANDREW GILMOUR: I think that the condition is neurodermite. The patient has on her hands a very thick lesion, and I think that a great deal of the thickening is due to scratching.

DR. ISADORE ROSEN: While the color of the lesions is suggestive of lichen planus, I would seriously consider the diagnosis of psoriasis, especially on account of the size and character of the lesions and the involvement of the palms and soles.

DR. PAUL BECHET: I agree with the diagnosis as presented. The greatly thickened palms might have been caused by the long continued use of arsenic.

DR. GEORGE M. MACKEE: We all know that lichen planus can imitate diseases, such as psoriasis, syphilis, etc. Also lichen planus of the palms and soles is difficult to diagnose. If the eruption is on the palms alone the lesions may look like deep-seated, thick-walled vesicles. While we cannot be sure clinically about the palms and soles in this case, it is probable that the entire eruption is lichen planus.

ERYTHEMA ANNULARE CENTRIFUGUM (DARIER). Presented by DR. FRED WISE.

A. K., a woman, aged 32, married, born in Austria, presented herself at the Post-Graduate Clinic on Nov. 5, 1931, for the treatment of a persistent eruption on the left side of the midabdomen. The family and personal histories were irrelevant.

Examination revealed a series of circinate and garland-like, festooned lesions on the left side of the abdomen; these consisted of curved bands, about one-half inch in width, presenting a faintly elevated convex border of pink color, and gradually fading to normal skin in the concavity of the crescent. Some of the lesions had been present for two years; others had shown tendencies toward resolution and recurrence. Local treatment had been of no avail. There was some slight itching.

DISCUSSION

DR. ISADORE ROSEN: I agree with the diagnosis as presented. These cases are very rare and interesting, and I wonder whether the pathologic process is characteristic of urticaria or a granuloma.

DR. ANDREW GILMOUR: I agree with the diagnosis.

DR. HOWARD FOX: This case undoubtedly belongs to the class of eruptions of the type mentioned by the presenter, though there are various cases with unimportant differences. It is proper to look for fungus, though I do not think this could be found.

DR. GEORGE M. MACKEE: I agree with Dr. Fox that there are several if not many types that may be included under this title. In fact, hardly any two cases are exactly alike. I recall a patient who had typical lesions of the Darier type for a year or two. Later these lesions disappeared and there were recurrent attacks of ordinary erythema multiforme.

LUPUS VULGARIS. Presented by DR. M. B. PAROUNAGIAN.

D., a man, aged 21, colored, came to the Bellevue Hospital Skin Clinic on June 10, 1931. There was no history of a venereal disease, and the Wassermann reaction was negative. The patient's father died of an accident, and his mother died of "pleurisy." The patient was the only child. The duration of the skin disease was over two years. Examination revealed the following: typical scrofuloderma scars on the left side of the neck; enlarged, fluctuating glands of the right side, extending from the neck down, involving almost the entire chest. There was a similar patch on the lower portion of the abdomen, extending down to the pubes, and a fair sized patch on the left shoulder blade and several small lesions on the anterior and posterior aspects of the left leg. The patient did not complain of cough or appreciable loss of weight. He was given thirteen injections of gold sodium thiosulphate with considerable improvement.

DISCUSSION

DR. FRED WISE: I agree with the diagnosis of lupus vulgaris of the clinically superficial variety.

DR. HOWARD FOX: I agree with Dr. Wise that this is tuberculosis. It should be classed as an extensive hypertrophic and serpiginous type of lupus vulgaris.

DR. M. B. PAROUNAGIAN: I am reasonably certain that this is not a case of syphilis and that it is tuberculosis, based on the existence of the enlarged and fluctuating glands on the neck and also the scrofuloderma scars, on the slow progress of the case, the absence of venereal history and the negative Wassermann reaction.

EPITHELIOMA OF THE TOE. Presented by DR. LUDWIG OULMANN.

J. G., a woman, aged 71, came three weeks ago to the clinic (Lenox Hill Hospital) with a lesion on the dorsal distal phalanx of the left big toe, which existed for three or four weeks. The patient had been under my care during this time, without signs of improvement.

Under the big toe is an ulcerous, round, sharply circumscribed area the size of a dime, covered with soft, easily bleeding granulomatous tissue, which gives it a slightly raised appearance. At the edge is a warty excrescence, which was removed by a sharp spoon, and then the entire area was curetted. During the three weeks I observed her, the granulomatous mass filled up again and the lesion became a little larger in circumference. I present the patient with the diagnosis of a malignant condition, probably epithelioma.

DISCUSSION

DR. FRANK FRASER: I agree with the diagnosis of prickle cell epithelioma.

DR. ANDREW GILMOUR: I agree with the diagnosis as presented.

DR. HOWARD FOX: From the clinical appearance this lesion might be either exuberant granulation tissue or a prickle cell epithelioma. Unless this is proved histologically to be simple inflammation, I would treat it as a malignant condition.

DR. FRED WISE: I believe the lesion is more likely an amelanotic sarcoma rather than epithelioma, and would suggest radical treatment before evidences of metastases appear.

DR. GEORGE M. MACKEE: I think that the lesion represents a malignant neoplasm. I did not palpate the lesion, but it looked very firm. It did not look like soft granulation tissue like one sees in pyogenic granuloma; the granulations, if they may be called such, looked hard — infiltrated. The diagnosis should be settled by microscopic study before anything further is attempted.

DR. LUDWIG OULMANN: I thought of granuloma pyogenicum or plain granuloma, but observation of the course of the lesion leaves only the diagnosis of a malignant condition. The patient was kept for presentation, and a biopsy will be done immediately and reported on.

NOTE.—Since presentation the patient had the toe amputated. The diagnosis, based on the report of the biopsy, was an actively growing malignant neoplasm, probably sarcoma, of the toe. The specimen, received in formaldehyde, designated "tissue from right toe," consisted of a piece of firm, opaque, grayish tissue, measuring 1.8 by 1.4 by 0.2 cm. One surface was covered with skin.

Section of the fragment showed a malignant growth which was composed for the most part of plump, well nourished spindle-shaped cells which were usually arranged in bundles which ran in all directions, frequently anastomosing with one another. These cells showed considerable dimensional and tinctorial irregularities, and in many of them were noted mitotic figures. Scattered among the spindle cells were masses of round cells of various sizes, some of which were large and multinucleated. The stroma was extremely scanty and was well supplied with small, thin-walled blood vessels. The epidermis covering the tumor was much degenerated or necrotic and was infiltrated by tumor cells. The tumor itself showed large areas of necrosis. Pigment was not demonstrable in the tumor cells, and there was no evidence of a transition between the epithelial cells of the epidermis and the tumor cells.

BROOKLYN DERMATOLOGICAL SOCIETY

A. M. PERSKY, M.D., *Secretary*

Nov. 16, 1931

B. B. BERKOWITZ, M.D., *Presiding*

GRANULOMA ANNULARE. Presented by DR. J. SKEER.

H. F., a boy, aged 13, born in the United States, presented himself at the clinic of the United Israel Zion Hospital complaining of a lesion over the dorsum of the metacarpal phalangeal joint of the right thumb. He stated that the lesion began about one year previously, following trauma.

Examination showed a circular lesion the size of a dime, the margin of which was well defined and consisted of yellowish, firm nodules the size of a split pea. The center was depressed and slightly scaly. There were no subjective symptoms.

GRANULOMA ANNULARE (RECURRENCE). Presented by DR. B. B. BERKOWITZ.

P. S., 4 years of age, was presented before this society on Sept. 11, 1930; the condition was the same as in Dr. Skeer's case but more marked. At presentation he exhibited erythematous, circularly grouped papules the size of a pea, some of which had coalesced. The lesions were about the size of a five cent piece. The patient was treated from August, 1930, until early in January, 1931, with weekly exposures to a quartz lamp with some improvement. Later potassium iodide in saturated solution, 1 drop three times daily, was ordered. In March, 1931, the lesions had entirely disappeared.

Four weeks previous to presentation the patient reappeared at the clinic with a recurrence of the lesions as now observed.

PHENOLPHTHALEIN ERUPTION. Presented by DR. A. WALZER.

J. M., a boy, 6 years of age, had been taking "Ex-Lax" every two weeks for a long time. The present trouble began about two years before presentation with an "itchy eruption" which gradually disappeared but left pigmented areas. He had had no recurrence of a similar eruption. The pigmented lesions had not changed in color since their appearance, except that a few areas appeared fainter. Only local remedies had been applied.

When presented there were scattered over the trunk and neck faintly yellowish macules the size of a pea. Some of them were surmounted with fine erythematous points which did not disappear under pressure. On the upper posterior part of the right side of the chest was a round, pigmented hairy nevus the size of a dollar. The lower extremities, from the hip down, showed many scattered macules of various shapes and sizes. In color, they varied from faint yellow to dark red or brown.

GENERALIZED LICHEN PLANUS WITH PIGMENTATION AND ATROPHY. Presented by DR. L. J. FRANK.

J. I., 66 years old, presented an eruption of eight years' duration, for which he received eight injections, one every other day, and the lesions disappeared. Seven months previous to presentation the same condition appeared on the palms and soles, as erythematous papules with marked itching. Within three weeks the entire body was affected. The patient presented discrete, coalescing, sharply angulated, glistening, violaceous papules. Lesions of the mouth were present. Atrophy and pigmentation were also present. The Wassermann reaction was negative. The results of chemical examination of the blood and the blood count were normal.

SCLERODERMA. Presented by DR. B. B. BERKOWITZ.

D. P., a girl, aged 17, presented over the hands a rather tense and smooth, slightly cyanotic integument. Flexion of the fingers was considerably impaired, and there was also obliteration of the lines of cleavage, especially on the dorsa of the hands. Weakness was present in both hands. The patient's maternal grandmother had arthritis deformans. The skin of the forehead, chest and sternal area as well as that of the feet showed similar changes. The toes and feet were also slightly cyanotic and very cold and clammy.

XANTHOMA TUBEROSUM MULTIPLEX. Presented by DR. B. B. BERKOWITZ.

H. R., a 9 year old, well nourished boy, presented on both elbows circular, soft, papular, glistening lesions, lemon to orange-colored, with a somewhat reddish border. There were similar lesions on the costal areas, gluteal fold, popliteal spaces, iliac region and axillary folds. Over the neck and scapular areas were similarly colored but less elevated gyrate lesions. The joints of nearly all the fingers were thickened, without discoloration. The left elbow and left costal area were redder than the other patches, owing to treatment. The patient had a blood cholesterol value of 33 mg. per hundred cubic centimeters.

DISCUSSION

DR. J. SKEER: A case of extensive xanthoma tuberosum in a boy 2 years old was shown at the Academy three years ago. My associates and I have observed him ever since. He was treated with the Grenz rays, and the lesions seemed to flatten out, but this did not prevent new lesions from appearing. The lesions were not as large as in the baby presented here, but were more extensive.

DR. A. WALZER: Xanthoma tuberosum has a definite metabolic pathogenesis, and therefore I do not think that the destruction of those lesions will help in curing the disease itself. The presence of the xanthoma lesions on the skin in this case shows that the person probably has a tendency to the retention of cholesterol. The prognosis for that person, therefore, is not good, and with such a cholesterol disturbance, vascular, cardiac and renal disease may possibly be looked for later in life. With these facts in mind the physician might adopt such measures as would probably lessen the retention of cholesterol. It has recently been suggested that the primary disturbance in this condition is a lipema and that the cholesteremia is secondary.

A CASE FOR DIAGNOSIS (PEMPHIGUS?). Presented by DR. A. WALZER.

B. W., a woman, aged 50, married, was always well except for the condition presented which dated back about ten weeks before presentation. It began on the left side of the nose and spread to the ears and under the breast and then became generalized. When presented there was an erythematous, gyrate lesion with a central bulla. Many of these bullous lesions dried and formed crusts. On the left side of the face was a sharply outlined, moist patch the size of a dollar, covered with a crust. The scalp presented many scratched points and patches of seborrhea. Itching was pronounced. There was no dermographism. There were no lesions in the mouth. On the abdomen were many similar, serpiginous patches with papular scratched borders.

DISCUSSION

DR. E. A. GAUVAIN: I thought of erythema multiforme, also of dermatitis herpetiformis and pemphigus, but the type of bullae and the character of the erosions make me lean to the diagnosis of pemphigus.

DR. J. SKEER: Three diagnoses came to my mind; two were mentioned, and the other is urticaria bullosa. The condition probably is a hypersensitization in the urticarial group. On the other hand, dermatitis herpetiformis seems strongly

probable because of the grouped vesicles and the scratched papules with pigmentation. However, these bullae are superficial and flaccid, which makes me think of pemphigus.

DR. W. H. BEST: I would hazard a diagnosis of dermatitis herpetiformis on account of the marked itching, the multiform lesions and the recurrence.

DR. A. WALZER: This case did not fit into any of the diagnoses suggested. First, urticaria bullosa is eliminated, since the patient never had any definite bullae and the development of the lesion was not characteristic of urticaria. Multiform erythema is ruled out because the lesions on the face which are part of the disease, certainly are not those of multiform erythema. The condition could not be dermatitis herpetiformis as the eruption is only of about ten weeks' duration; there is no grouping, and the development of the lesion is not that of the lesions of dermatitis herpetiformis. A possible diagnosis is a form of pemphigoid recently described by Senear and Usher, an eruption that simulates lupus erythematous, seborrhea and pemphigus. The patient has seborrheic patches on the scalp and a patch on the face suggestive of lupus erythematosus.

ACANTHOSIS NIGRICANS, SENILE KERATOSES, PIGMENTED MOLES. Presented by DR. B. B. BERKOWITZ.

A. M. L., a man, aged 68, had the condition presented since seven months before presentation. In both axillae and groins were large areas of brown to black, pigmented, papillomatous growths which appeared rough but were soft and velvety to the touch, with a moist surface. The sternoclavicular fossa showed an area the size of a quarter of a dollar similar but less elevated. On both elbows were irregular circular blackish areas the size of a quarter of a dollar, with beginning papillomatous growth. The vermilion borders of the lips were darker and drier than usual with slight fissuring. On the scalp were many white and brownish keratoses ranging in size from that of a pinhead to that of a pea. On both cheeks were scattered brown to black, sharply outlined patches ranging in size from that of a pea to that of a bean. The dorsa of the hands also presented thickened warty growths of the same size as the other lesions. On the left arm were several pigmented verrucous moles; the palms and soles were very dry and grater-like to the touch.

DISCUSSION

DR. A. WALZER: I think the condition is acanthosis nigricans on account of the excessive pigmentation in the groin plus the superimposed cutaneous lesions. The interesting feature, however, is its relation to some internal etiologic connection. Is cancer responsible for it? Many cases of acanthosis nigricans involve carcinoma of the abdominal organs with involvement of the abdominal sympathetic nerves, etc. Acanthosis nigricans has also been described in association with renal, hepatic and other abdominal noncancerous conditions.

DR. J. SKEER: To me the case presents a classic picture of acanthosis nigricans. The large mass in the abdomen probably is some form of malignant growth, which tends to bear out the diagnosis.

DERMATITIS EXFOLIATIVA (PITYRIASIS RUBRA, HEBRA?). Presented by DR. W. H. BEST.

W. M., a white man, had had a patch of erythema and itching around the scrotum since 1929. Within a week after the onset, redness spread over the entire body. Desquamation of the skin soon appeared, with itching. There was no history of illness previous to the onset and no history of medication either by mouth or intravenously. There was a universal erythema with scaling of the integument. The scales varied from fine to moderately coarse, and were thin and laminated. The skin appeared dusky red and tense. The patient was emaciated, and adenopathy was present. The results of chemical examination of the blood and the Wassermann reaction were normal.

DERMATITIS EXFOLIATIVA (WILSON). Presented by DR. W. H. BEST.

J. G., a white man, aged 58, born in Ireland, had an attack of generalized redness, itching and scaling in 1929, which lasted about two months and cleared under local treatment. About March, 1931, he noticed redness with slight itching on the abdomen; this soon became generalized. Desquamation started within a few days after the various parts became implicated, and itching increased in intensity. The entire integument was dusky red, the lower extremities being almost cyanotic. The desquamation was profuse, with coarse, laminated scales, which were smaller on the trunk but on the extremities were ½ inch (1.25 cm.) in diameter. The integument showed varying degrees of infiltration and on the extremities it was markedly thickened. The hair had fallen out and the nails showed atrophic changes. The patient continued to be fairly well nourished.

DERMATITIS EXFOLIATIVA (ARSENICAL). Presented by DR. W. H. BEST.

C. G., a colored man, aged 50, was born in the West Indies and was under antisyphilitic treatment; he had received numerous injections of neoarsphenamine. Following an injection in August, 1931, a generalized red, oozing eruption appeared accompanied by severe itching. After a few weeks the oozing ceased, and the skin became dry and scaly. The scaliness had persisted more or less ever since. The patient did not complain of cold or chilly sensations. There was no change in the normal color of the skin, the patient being a Negro. There was a diffuse, from fine to coarse desquamation which varied in amount over different parts of the body. The scales were not laminated. The skin in some places showed slight infiltration. The Wassermann reaction was 4 plus, and the urine contained arsenic.

DISCUSSION

DR. W. H. BEST: I wanted to show three different types of dermatitis exfoliativa, that is, two primary and one secondary. The two distinct types of primary dermatitis exfoliativa are the Wilson-Brocq and the Hebra types. Then there is the secondary exfoliative dermatitis which appears after other dermatoses, which after it is once established can hardly be differentiated clinically from the Wilson-Brocq type. In the first case, that of the Hebra type, the skin appears tight and drawn, which is the beginning of atrophy. The patient's health is gradually failing and he is emaciated and weak. Dr. Walzer feels that one is not justified in making a diagnosis of pityriasis rubra without distinct atrophy of the skin; however, everything must have a beginning. In the second case, that of the Wilson-Brocq type, the patient shows a distinct infiltration and thickening of the skin. He does not show any emaciation and appears well nourished. I would call attention to the different types of desquamation in these cases. In the Wilson-Brocq type the scales are large, reaching the size of a dime, whereas in the Hebra type the scales are much smaller. In both instances the scales are typically laminated. In the secondary type, following an arsenical dermatitis, there is almost nothing characteristic about the scaling, merely a persistent desquamation, for the most part, of fine scales without any tendency to central or peripheral attachment.

DETROIT DERMATOLOGICAL SOCIETY

H. J. PARKHURST, M.D., *Reporter*

Regular Meeting, Nov. 17, 1931

C. W. BEHN, M.D., *Presiding*

A CASE FOR DIAGNOSIS. Presented by DR. LOREN W. SHAFFER.

Mrs. L. W., aged 44, was a psychiatric patient and her history was not reliable. She presented numerous narrow white lines that stood out prominently on her

dark skin. They were located particularly about the knees, wrists, neck and abdomen. Those about the knees and wrists were suggestive of scars following scratching, and were slightly thickened. The lines on the neck, however, were arranged in a mosaic pattern, so that a factitious origin was hardly conceivable. The slight thickening of some of the linear lesions did not suggest linea albicantes, and the absence of thickening in others did not favor a diagnosis of keloid.

DISCUSSION

DR. UDO J. WILE: Most of the lesions could be self-produced.

DR. R. C. JAMIESON: The lesions on the wrists and hands look as though they had been produced by trauma. She is a psychopathic patient, and previous restraint may have caused the lesions.

PURPURA ANNULARIS TELANGIECTODES. Presented by DR. CYRIL K. VALADE.

G. M., a girl aged 19, employed in an office, stated that she had first noticed an eruption on her ankles in June, 1930. It had persisted until May, 1931, when it had extended, involving the legs and thighs rapidly and symmetrically. Especially on the legs and thighs there were many minute red puncta, forming rings and parts of circles. In other lesions telangiectasia was visible, and especially about the ankles and sides of the feet there were lesions with necrotic areas varying in size from that of a pea to that of a bean, some with hemorrhagic crusts. Some of the telangiectatic lesions had white atrophic centers, and others were encircled by a brownish ring. The wrists were slightly involved, with a few faint erythematous rings. The hair follicles were apparently not involved. No biopsy had been permitted. The Wassermann reaction was negative.

DISCUSSION

DR. HARTHER L. KEIM: I have made no definite diagnosis thus far in this case, although I have considered the possibility of dermatitis factitia. The annular scars suggest this condition, but the purpura does not.

DR. GEORGE H. BELOTE: I feel much as Dr. Keim does. At first I thought of papulonecrotic tuberculid and bromoderma, but that would not explain the telangiectasia and purpura. I should like to have the opportunity of examining some cases of Majocchi's disease.

DR. UDO J. WILE: We are not in a position to call this Majocchi's disease. One possible diagnosis is lupus erythematosus, in view of the atrophy, telangiectasia and parakeratosis. I think that purpura annularis telangiectodes is a syndrome rather than a disease.

POSTSCABETIC DERMATITIS. Presented by DR. GEORGE W. HYDE.

H. C., aged 46, a Russian Jew, with an arrested case of diabetes, had been cured from scabies three weeks previously, the scabies having been of three months' duration. Following this, a number of small pinhead-sized, brownish, intensely pruritic lesions had persisted about the ankles, and had then rapidly involved the legs and trunk. This eruption was undergoing gradual involution. There was no glycosuria.

DISCUSSION

DR. CLYDE K. HASLEY: The lesions somewhat resemble those of Schamberg's progressive pigmentary dermatosis.

DR. C. W. BEHN: I agree with the diagnosis of postscabetic dermatitis.

MULTIPLE IDIOPATHIC HEMORRHAGIC SARCOMA (KAPOSI). Presented by DR. CYRIL K. VALADE.

M. E., aged 66, an Armenian cobbler, had been presented before the society in November, 1930. He was presented to show the great improvement in his con-

dition after treatment with roentgen rays and injections of sodium cacodylate. Seven teeth had been extracted, and nasal polypae had been removed.

DISCUSSION

DR. UDO J. WILE: Patients have remained well after treatment with arsenic and roentgen rays. As a rule, the prognosis in Kaposi's sarcoma is relatively good, for the condition usually progresses very slowly, new lesions tending to appear and old ones to reappear. The disease is seldom rapidly fatal.

ACUTE SYPHILITIC MENINGOMYELITIS WITH ACUTE DECUBITAL (TROPHIC) ULCERATIONS. Presented by DR. HARTHER L. KEIM.

Mrs. E., aged 21, consulted a physician in June, 1931, because of "a boil on the lip." Following a positive blood test, intramuscular treatment was started. On July 3, a gastro-intestinal upset was followed by symptoms of an acute infection, and on July 7 the patient was brought to the hospital in a comatose condition. Examination revealed a positive Kernig sign, a rigid neck, moderate elevation of temperature, retention of urine and feces, a positive serologic reaction and positive findings in the cerebrospinal fluid. The lymphocyte count in the latter was only 9. Potassium iodide was administered intravenously, and mercury succinimid intramuscularly, followed by improvement substantiating the diagnosis of syphilitic meningitis. During the ensuing month a paraplegia appeared while she was under treatment, and trophic ulcers developed.

There was definite disturbance of perception in the lower legs, loss of vibratory and muscle sense, incomplete paraplegia and incontinence of urine and feces. Bilaterally and symmetrically distributed there were ulcerated trophic lesions on the heels, knees, buttocks and over the trochanters. The serologic findings in the blood were negative, while the spinal fluid remained unchanged. With resumption of treatment some improvement in the neurologic signs has been noted, but the ulcerations have continued slowly to progress.

A CASE FOR DIAGNOSIS (PITYRIASIS ROSEA?). Presented by DR. LOREN W. SHAFFER.

E. C. C., a young man, stated that three months previous to presentation lesions, at first vesicular and later crusted, had developed on the legs at the sites of "mosquito bites." These had persisted as patches of subacute crusted dermatitis, varying from the size of a medium to that of a large coin. On Nov. 1, 1931, an intensely pruritic generalized eruption had appeared. The trunk and later even the face and palms had been involved, but not the mucous surfaces. The lesion was a papule, becoming a vesicle, pustule and crust. This eruption had been preceded for twenty-four hours by malaise, general aches and pains, and probably some fever, although the temperature was found to be normal on November 2. A diagnosis of varicella had been made. The lesions then faded, but a vesicular dermatitis had developed about each one, forming a generalized subacute patchy dermatitis, with intense pruritus.

DISCUSSION

DR. LOREN W. SHAFFER: The history is the important feature of the case. At present I do not hesitate to call it pityriasis rosea, but the onset was like that of varicella, plus pruritus. The early lesions gradually developed into the present ones.

DR. HARTHER L. KEIM: It is unfortunate that all of us could not have seen this patient a month ago. The case may be an unusual type of pityriasis rosea, associated with vesicles of dyshidrotic type on the palms and soles, resembling toxic erythema. We have lately observed twelve or fifteen such cases, which faded in a few weeks with abundant general desquamation.

DR. UDO J. WILE: Like influenza, pityriasis rosea runs in cycles. I have described a case in which the eruption was ushered in with bullae, involving also

the oral, nasal and vaginal mucosa, and later becoming typical pityriasis rosea. In the last few years I have seen a number of unusual types of pityriasis rosea, including involvement of the face and unusual locations of the herald patch. This case seems to be pityriasis rosea of a violent inflammatory type.

DR. GEORGE H. BELOTE: This might be pityriasis lichenoides et varioliformis acuta.

A CASE FOR DIAGNOSIS. Presented by DR. EMMETT C. TROXELL.

A. S., an Italian girl aged 12, had had measles at the age of 3, and at the age of 11 she had been confined to bed for a short time because of "rheumatism." Otherwise her general health had been good, and there were no cutaneous abnormalities in the family.

Erythema of the eyelids and about the eyes had first been observed about one year previous to presentation, and had gradually become more pronounced. There was a permanent dilatation of the skin capillaries, and the erythema was much intensified by excitement or embarrassment. During the year there had also appeared a localized redness over the extensor surfaces of the joints, especially the knees, elbows, fingers and toes, varying from a cyanotic hue to a bright red. There had been no subjective symptoms in these areas.

There was pronounced hyperhidrosis palmaris et plantaris, readily produced by excitement. Beads of sweat had always appeared on the face during physical examination. The hands and feet were cold, damp, pale and cyanotic. Hypertrichosis was also present, especially on the upper lip and over the back of the trunk, and there was an indefinite hyperpigmentation.

The laboratory findings were essentially negative.

DISCUSSION

DR. LOREN W. SHAFFER: A diagnosis of lupus erythematosus might fit in with the history in this case.

DR. HOWARD J. PARKHURST: The telangiectasia without visible atrophy on the eyelids and fingertips suggested a vasomotor disturbance, possibly of endocrinous origin.

PITTSBURGH DERMATOLOGICAL SOCIETY

CLAUDE B. NORRIS, M.D., *Secretary*

Regular Meeting, Nov. 19, 1931

JAMES H. FISCUS, M.D., *President, in the Chair*

GUMMA OF THE TONGUE? Presented by DR. STANLEY CRAWFORD.

H. A., a white man, aged 58, had a papillomatous lesion, 1.5 cm. square, without infiltration or inflammatory border, on the right half of the tongue 2.5 cm. from the tip. The lesion was of seven weeks' duration. It was painless and did not bleed. There was a similar small papillomatous area with some infiltration on the left side of the tongue near the midline, about 1.5 cm. from the tip, of four weeks' duration. The entire tongue was thicker and redder than normal, with moderate leukoplakia and atrophy over its anterior half. The submaxillary glands were enlarged. The patient smoked a pipe and cigars frequently. A biopsy of the large lesion was reported by a pathologist as benign epithelioma or atheroma. The lesion was treated with a radium plaque, and one week later the cauliflower-like excrescence came off and was expectorated in a mass.

DISCUSSION

DR. W. H. GUY: This case impressed me as being interstitial syphilitic glossitis, but the presence of rather large regional glands suggested the likelihood of a malignant condition as a complicating factor.

DR. LESTER HOLLANDER: The tongue looked like that in Mueller's glossitis, but there was no pain. This condition is frequently due to syphilis. I considered the lesion a syphilitic interstitial glossitis with carcinomatous degeneration, especially because of the presence of bilateral glandular enlargement.

DR. STANLEY CRAWFORD: The Wassermann reaction of the patient's blood was 4 plus, but that did not rule out the possibility of carcinoma. The multiplicity of the lesions, two in number, the leukoplakia and the thickening of the tongue favored the diagnosis of syphilis. The patient was treated with radium and bismuth injections. I deferred the using of an arsenical because of its epithelial stimulating propensities.

A CASE FOR DIAGNOSIS. Presented by DR. W. H. GUY and DR. F. M. JACOB.

A boy, aged 2 years, had a lesion in the right side of the groin, which was present at birth and had been slowly enlarging. The lesion was approximately 4 inches by 1 inch (10.16 by 2.5 cm.) in diameter, erythematous, slightly scaly and atrophic, with slightly elevated pearly edges. There were no subjective symptoms.

DISCUSSION

DR. LESTER HOLLANDER: I cannot offer a definite diagnosis. Three diagnoses must be considered: (1) parapsoriasis, (2) scleroderma and (3) lupus erythematosus. I believe a biopsy is needed for diagnosis.

DR. STANLEY CRAWFORD: I consider Jadassohn's atrophoderma erythematosa as the most likely diagnosis, since the area is definitely atrophic, red and rather sharply marginated. Most of the cases of this type of atrophy described by Jadassohn are idiopathic.

IDIOPATHIC MULTIPLE HEMORRHAGIC SARCOMA (KAPOSI). Presented by DR. H. G. WERTHEIMER.

Mr. A. B., aged 58, an Italian, for the past ten years had had swelling of the feet and legs, and over the parts numerous red to plum-colored tumors and pigmentation. On the toes and heels there were innumerable tumors from pea to walnut-sized and larger, varying in color from dull red to plum; some were firm, others soft, and the skin over the tumors was tense and glistening. On the right sole pedunculation was noted. On the left foot over the internal malleolus a foul-smelling fungoid growth about 2 inches (5 cm.) in diameter was present, and on the sole there were two pedunculated lesions with keratotic free borders and atrophic ulcerations. On the heel of this foot, the tumors looked like a bunch of small-sized grapes. A few tumors were found on the toes and one lesion on the little finger of the left hand. The legs, particularly the posterior aspects, were studded with similar lesions for the most part flat and less numerous. Walking was painful. The disease started with swelling of the right leg. Nine years before presentation a few of the tumors had been removed.

DISCUSSION

DR. GEORGE J. BUSMAN: I agree with the diagnosis, but believe much of the picture was due to chronicity. The patient has clear vesicles due to lymphatic stasis, and the large tumor mass is an infectious vegetative granuloma.

DR. STANLEY CRAWFORD: I favor the diagnosis as presented and suggest that a study of the blood and section of the tissue be made to rule out the possibility of leukemic infiltrations and lepromas in the skin.

DR. H. T. PHILLIPS: I believe that the large fungating lesions are infectious granulomas and not malignant. If the patient had had no roentgen treatment, then either unfiltered or filtered roentgen rays might do him a lot of good. This patient is an Italian, while most of the cases I have seen have been in Russian Jews.

DR. E. GILLESPIE: I agree with the diagnosis. I thought the fungoid lesion was unusual in this disease. I wonder if it is not a more malignant type of lesion.

DR. H. G. WERTHEIMER: Although most cases are found in Russians, the Italians are also subject to this disease. Concerning longevity, Kaposi stated that as a rule these patients die in about five years from the onset of the condition, yet there have been cases lasting from ten to twenty years and even as long as twenty-five years. Fungoid lesions may present themselves in the later stages of the disease.

ERYTHEMA NODOSUM. Presented by DR. W. H. GUY and DR. F. M. JACOB.

A man aged 38 presented scattered subcutaneous, erythematous and slightly tender nodules, varying in size from that of a dime to that of a dollar. The condition was of thirteen years' duration. One lesion on the calf of the right leg showed central sloughing, probably the result of secondary infection. The patient had been treated for congenital syphilis over a term of years. He also had been taking "S. S. S." at varying intervals during the past year.

DISCUSSION

DR. H. T. PHILLIPS: It is possible that the nodules are the result of iodide therapy used for the past thirteen years for the congenital syphilis—the so-called iodide sarcomas or gummas. The patient gave a history of having repeated attacks of these nodules. I believe, as a rule, one attack of erythema nodosum gives an immunity, so that a second attack is a rarity.

DR. LESTER HOLLANDER: I accept the diagnosis without question. The pain and tenderness speak strongly against the "iodide tumors."

DR. W. H. GUY: This patient had an extreme dental infection; all his teeth were loose, and marked pyorrhea was present. A biopsy will be obtained and the teeth extracted at once. Whether this was the source will necessarily be determined by the course of the condition after removal of the apparent possible source of infection.

PIGMENTARY SYPHILID (LEFT PALM). Presented by DR. STANLEY CRAWFORD.

I. T., a colored woman aged 22, had presented a macular hyperpigmentation of the left palm and palmar surfaces of the fingers for six years. The lesions at the time of onset were similar to those seen at the time of presentation, and she stated that they were never infiltrated or red. The Wassermann reaction of the blood was 4 plus.

DISCUSSION

DR. L. G. BEINHAUER: The unilateral character of the eruption, with the pigmentary changes, was unusual. Had this condition been on the neck, the diagnosis of leukoderma colli would have been readily offered. Under antisyphilitic treatment the condition improved greatly.

DR. LESTER HOLLANDER: I feel that this was a pigmentary disturbance in a syphilitic person, the latter phase being incidental. I cannot accept it as caused by syphilis. Colored people show bizarre pigmentary lesions.

SCARS OF NODULONECROTIC TUBERCULOSIS CUTIS? Presented by DR. STANLEY CRAWFORD.

T. B., a colored child aged 4 years, at the age of 1 year had numerous round or oval infiltrated lesions, which later ulcerated and left soft pigmented scars

over the lower part of the back, buttocks and thighs, arranged somewhat in the lines of cleavage on the lower trunk. Scars of similar lesions were present over the right scapular area and on the upper eyelids. The child was mentally alert but of small stature. Roentgenograms of the heart and lungs were negative; cutaneous tuberculin tests, 1 : 10,000, 1 : 1,000 and 1 : 500, of both human and bovine types, were strongly positive. There were a large left submaxillary gland, smaller right submaxillary gland and small marble-sized glands in the postcervical and epitrochlear regions. The child was thought to have a type of tuberculosis that originates in lymphatic tissue and spreads to the skin by the small cutaneous lymphatics, and often develops into pulmonary tuberculosis in later years.

HYDROA ESTIVALE? Presented by DR. STANLEY CRAWFORD.

M. W., a white girl aged 4 years, had many marked small depressed scars over the forehead, cheeks and chin, which were the result of inflammatory papules and papulopustules of the past three years. The acute lesions appeared mostly in the spring and fall and the lesions often became impetiginized. A few scars and small papulopustules were noticed on the backs of the wrists and hands. An examination of the blood showed: erythrocytes, 3,880,000; leukocytes, 13,200; hemoglobin, 82 per cent; polymorphonuclears, 20 per cent; lymphocytes, 75 per cent; large mononuclears, 3 per cent, and myelocytes, 2 per cent. The liver and spleen were enlarged. The Kahn reaction of the blood and the tuberculin skin reactions were negative. The patient had a purulent nasal discharge. A diagnosis of leukemia was considered, and with the injection of adenine sulphate the polymorphonuclears became 75 per cent, and the lymphocytes, 20 per cent. A recent blood count showed: polymorphonuclears, 56 per cent; lymphocytes, 42 per cent, and eosinophils, 2 per cent. No hematoporphyrin or porphyrinuria were found.

DISCUSSION

DR. W. H. GUY: I agree with the diagnosis as presented. The scarring was typical, and the seasonal exacerbation very suggestive.

CLEVELAND DERMATOLOGICAL SOCIETY

J. R. DRIVER, M.D., *Reporter*

Regular Meeting, Nov. 19, 1931

H. J. PARKHURST, M.D., *Presiding*

TRICHOPHYTID. Presented by DR. HENRY DEWOLF for DR. H. N. COLE and DR. J. R. DRIVER.

B. K., white, a boy, aged 6 years, from the dermatological service of the Cleveland City Hospital, admitted on Oct. 24, 1931, had a large kerion of the right occipital region, several small areas of tinea of the scalp, scattered round or oval scaly erythematous patches on various parts of the body, including the face, and a fine follicular eruption on the back of the neck and the upper part of the back. Epilation had recently been produced by thallium acetate. In addition he had received several injections of sterile milk. Locally he had been treated with permanganate baths, 2 per cent salicylic acid in 70 per cent alcohol and 0.5 per cent iodine in goose grease. Following the last injection of sterile milk on Nov. 13, 1931, he had a high fever for three days, at the end of which time an eruption was noted on the trunk, composed of rounded or oval erythematous dull red patches. The average size was about that of a dime. Over the middle and lower part of

the back the lesions were confluent. The results of direct examination of the hairs were positive. Cultures were positive for tinea of the scalp—Microsporon felineum. The Wassermann and Kline tests were negative.

DISCUSSION

DR. H. N. COLE: One interesting thing about this case is the fact that the patient has a kerion and a trichophytid due to the Microsporon felineum. Most cases, in our experience, are due to the Trichophyton gypseum group.

ACANTHOMA ADENOIDS CYSTICUM. Presented by DR. AMBLER for DR. H. N. COLE and DR. J. R. DRIVER.

J. M., a white man, aged 38, from the dermatological service of the Lakeside Hospital, complained of nodules on the face of twenty-three years' duration. At the age of 15 he began to have an eruption on his face, particularly about the nose. This process had gradually spread until after twelve months almost the entire face was involved; since then the lesions have remained practically stationary. He had never received treatment for the condition. His general health had been excellent, and there was no history of a similar condition in the family.

The physical examination revealed a fairly well nourished white man. Over the face and extending a short distance over the sternum, and in the interscapular region, there was a profuse nodular eruption. The nodules were most pronounced over the nose and about the eyes, and varied in size from that of a large pinhead to that of a bean. They were firm, painless, and appeared subcutaneous, with little change in the overlying skin.

From some of these lesions a cheesy material could be expressed (a specimen taken for biopsy was shown). Histologically, the tumor showed, distributed freely, through the corium, numerous sharply defined aggregates of cells, often arranged regularly and concentrically. There were many areas with so-called cell nests containing granular and colloid material in their centers.

DISCUSSION

DR. HENRY DEWOLF: I agree with the diagnosis. I also thought of the possibility of certain of the tumors being benign cysts. I have never seen a case of acanthoma adenoids cysticum as extensive as this.

DR. J. R. DRIVER: When we first saw this patient at Lakeside, on a very cursory examination, we thought the condition was adenoma sebaceum, but on careful examination and on biopsy it proved to be acanthoma adenoides cysticum. Dr. Cole and I had a patient a good many years ago, a woman, whose condition was almost a replica of this one. There was extensive involvement of the face. I do not recall that she had any lesions on the body. She responded well to radium treatment.

DR. H. N. COLE: I believe that this is a characteristic case of acanthoma adenoides cysticum (Brooks). The eruption is symmetrical and most extensive, especially around the sides of the nose, and is made up of raised, pearly, lobulated papules, nodules, and, in some places, even tumors. It does not have the greasy feel of adenoma sebaceum, neither is the color that usually found with that disease. The patient seems to be mentally normal, and there is no telangiectasia in connection with the eruption. Moreover, microscopic examination of the specimen shows a process not unlike acanthoma adenoides cysticum. The individual lesions are the largest I have ever seen.

DR. E. W. NETHERTON: Though I have not seen any cases of this kind, I wonder if there would be any response to radium treatment.

DR. H. J. PARKHURST: The lesions are the largest I have ever seen, and the appearance on palpation was suggestive of benign cystic epithelioma.

A Case for Diagnosis: Generalized Exfoliating Erythrodermia. Presented by Dr. Henry DeWolf for Dr. H. N. Cole and Dr. J. R. Driver.

C. F., a white man, aged 37, from the Cleveland City Hospital, admitted on Nov. 12, 1931, has had the cutaneous disease under discussion for the last eighteen years. It began as a scaly lesion on the right shin, and itching was variable but never severe. His general health has been good. The patient stated that he has exacerbations, but that the eruption is the best it has been since it became generalized.

The physical examination showed a well developed and well nourished white man of 37 years with a generalized bright red dermatitis desquamating in fine scales. The skin seemed to be somewhat thickened. The results of the general examination were essentially negative. The tongue showed deep furrows.

The Wassermann test (former admission, 1928) was negative. A blood count showed: red cells, 3,860,000; white cells, 10,500; hemoglobin, 70 per cent. The differential count was: neutrophilic polymorphonuclears, 65 per cent; eosinophils, 1 per cent; small lymphocytes, 29 per cent; mononuclears, 5 per cent.

DISCUSSION

Dr. H. N. Cole: As near as I was able to make out, the patient's condition started with some scaly lesions on his shins. He went to a doctor and was given a stimulating ointment, and soon there was an eruption which spread over the entire body. Since then he has had relapses from time to time. The picture as seen today would suggest psoriasis. I am inclined to call it psoriasis with secondary dermatitis exfoliativa. There is often a relapse in patients who are almost well. The condition certainly has lasted a long time.

Dr. Shepherd: I agree with the diagnosis of a secondary type of dermatitis exfoliativa, as the patient says that he has used, or a physician has given him, something to use on a small sized lesion and that the present condition had spread from this.

Dr. J. A. Gammel: I believe the case is one of psoriasis.

Dr. H. J. Parkhurst: I thought the nail changes, taken with the scaly involvement, were in favor of psoriasis.

Dr. Henry DeWolf: This man was in the hospital in 1928 for about four weeks. The condition was almost identical as we see it now, and we could not arrive at a diagnosis more satisfactory than psoriasis with exfoliating dermatitis. The man says that at the present time he is in the best condition he has ever been.

Dr. J. R. Driver: Goeckerman wrote two or three months ago on his treatment of psoriasis. He reported that the exfoliating type such as this is readily amendable to treatment with tar and ultraviolet rays.

A Case for Diagnosis. Presented by Dr. H. N. Cole and Dr. J. R. Driver.

M. B., a white woman, aged 43, entered the Lakeside Hospital on Nov. 16, 1931, complaining of a sore on the left hand. The patient lives and works on a farm. One month before admission she helped her husband take care of a flock of sheep with sore noses and mouths. During that month, on two or three occasions, she picked up the remains of dead rabbits which the cats had dragged in. There was no history of injury to the hand. Ten days before admission she noticed three small vesicles situated on a reddened base, on the left thumb. Two days before admission this began to extend and rapidly coalesced, forming two large, dark blue bullae. The hand became markedly swollen, and the whole forearm felt numb; there was no tenderness. The husband had a similar but smaller lesion on his hand, which had involuted.

The physical examination revealed, on the dorsal aspect, at the base of the left thumb, a raised tumor with an indurated bright red base, which was surmounted by two large, deep blue, tense bullae about the size of pigeon eggs. On the flexor

surface of the same forearm, just a little above the wrist, there was a like dime-sized vesicle with surrounding erythema. Neither lesion was painful. The contents of the lesion on aspiration were found to be thick and gelatinous. There was a faint red streak up the medial surface of the arm. The axillary lymph glands were not enlarged. The patient had a low grade fever. Two or three days after admission a small, raised, vesicular lesion had also developed on an erythematous base around one side of the nail of the second finger on the other hand. A general physical examination revealed nothing abnormal. Her blood picture was also normal.

The section showed marked edema of the epidermis, especially of the upper portion of the corium, and an enormous epidermal bulla formation; in one portion of the section the edema in the upper portion of the corium was so extensive that the entire area was almost a confluent bullous lesion, subepidermal in type. The section showed intense cellular infiltration around the vessels, and in the upper portion of the corium this cellular infiltration was general. It was made up of mononuclears, with a liberal sprinkling of eosinophils. This cellular infiltration around the vessels extended deep into the corium, and there was a certain amount of it around the coil glands as well.

DISCUSSION

DR. J. R. DRIVER: We have been puzzled as to what the condition is. Considering the history, the possibility of tularemia and of anthrax naturally came to mind, but I also saw the resemblance to a case of erythema multiforme which I saw a number of years ago, in which there were, on the dorsa of the hands and wrists, several large, bullous, hemorrhagic lesions with erythematous and edematous bases; lesions, as I recall, almost identical to the picture presented in this case. A few days later, after sending this patient to the hospital, another lesion developed on the other hand, which would almost justify the diagnosis of erythema multiforme. In view of negative smears and negative inoculation into rats, I would at present favor a diagnosis of erythema multiforme.

DR. E. I. STEINBERG: How would that explain the husband's infection, which is similar to the wife's?

DR. H. N. COLE: The husband had a lesion on one wrist which was crusted over, reddish and dime-sized. It may have been of a similar nature, but was not characteristic enough to warrant a diagnosis.

DR. J. E. RAUSCHKOLB: There are two possible diagnoses, tularemia and pemphigus acutus. The lesion shows as typical a picture of tularemia as I have ever seen. The possibility of pemphigus acutis, however, occurred to me, as her husband also has been handling sheep. We had a case of pemphigus acutus four or five years ago in which there was a bullous eruption on one arm. There was very little redness, but an excessive amount of edema and several bullae extending up the arm.

DR. H. J. PARKHURST: It struck me that the condition might be a phenolphthalein poisoning, inasmuch as she had taken "Nature's Remedy."

DR. H. N. COLE: This is an interesting suggestion. After the patient came to the hospital a new lesion developed, though she had had no phenolphthalein. We will, however, make a clinical test. Frankly, we do not know what the patient's condition is. My first feeling was that we were dealing with anthrax. Thus far, however, the results of all our tests, including bacteriologic tests and tests for tularemia, have been negative. It is too early to report the results of inoculations into animals.

RAT-BITE FEVER. Presented by DR. HENRY DEWOLF.

S. J., a white woman, aged 52, from the medical service of Cleveland City Hospital, on or about Oct. 9, 1931, was bitten on the ulnar side of the right hand by a rat. On Oct. 29, 1931, she was seen in the surgical clinic of the out-

patient department complaining of blood poisoning of the right hand. Hot soaks were advised, and on Oct. 31, 1931, the hand was incised, but no pus was found. She was admitted to the hospital on Nov. 3, 1931, with cellulitis of the right hand and arm, enlargement of the right axillary lymph nodes, and a fever of 40 C. (104 F.). On Nov. 14, 1931, a macular eruption was noted on the chest and abdomen. Since admission she has had a relapsing type of fever with chills.

The physical examination revealed, on the ulnar edge of the right hand, a healed incision wound. The right hand and the ulnar side of the right forearm showed erythema and slight scaling. There was macular eruption of the face, chest, back, and extremities. The lesions were dull red, round or oval, well defined, and varied in size from 3 cm. to 6 or 8 cm. Over the lower extremities there were several fading lesions which were brownish. There was some edema of the ankles.

The Widal test gave negative results for typhoid and paratyphoid. The stool culture tests were negative for Bacillus typhosus. The leukocytes had varied from 9,000 to 16,400, according to the temperature. The red blood cells numbered 4,500,000; hemoglobin, 90 per cent; the blood pressure was 132 systolic and 86 diastolic. Roentgenograms of the chest were negative on Nov. 9, 1931, for evidence of infiltration of the lungs. A roentgenogram of the right hand was negative for changes in the bones.

DISCUSSION

DR. J. R. DRIVER: In this patient, I think the history and course of the disease are typical of sodoku, but as yet there is no method of demonstrating the organism in the blood stream in the human being. The disease runs a course similar to that of syphilis; the initial lesions appear usually about two or three weeks after the bite, and three or four weeks later the secondary eruption develops. The arsphenamines are specific in its cure, only a few injections being necessary.

DR. J. E. RAUSCHKOLB: Does it affect the Wassermann test?

DR. HENRY DEWOLF: The serologic tests were negative, and in this particular case the Kline and Hinton tests also. I saw two cases of rat-bite fever when a medical student. This one recalled them. The cases are similar. Two children had been bitten by the same rat, one child in the face. The eruption was the same in those two cases. This woman shows another condition supposed to be typical of the disease; i. e., edema of the lower extremities. The sharply defined, macular lesions, showing a tendency to clear up in their centers, are likewise typical of the disease. We have not found the spirochete from examination of the blood, and, in fact, no one in this country has done so, though in Japan they have been found. Injections have already been made into rats. The fever is usually of the recurrent type, coming on once in four or five days. In this patient it seems to appear about the fifth day, the temperature rising to 40 C. (104 F.). She was given her first treatment of neoarsphenamine this morning.

EXFOLIATING ERUPTION. Presented by DR. H. N. COLE and DR. J. R. DRIVER.

E. F. H., a white man, aged 50, complained of a cutaneous eruption involving the entire body and swollen glands. The family history was negative; the personal history, essentially negative. His work was not of a type that would predispose to a condition of the skin. About three years before presentation at the hospital the patient began to notice thickening of the skin over the entire body. With this there was massive edema of the lower legs, and he began to be very sensitive to cold. This condition has persisted, sometimes becoming a little worse and at other times improving slightly. At times there has been marked exfoliation of the skin. About one and one-half years before presentation for treatment he began to notice swollen glands in the inguinal regions; later, in the axillary and cervical regions. Following this stage there were periods of chilliness and later of definite chill, followed by rise in temperature. The swelling of the glands had increased markedly during the last few months before admission.

Physical examination showed the patient's skin to be thick, rough and dry, and in some regions, particularly over the abdomen, exfoliated. The pupils were equal and reacted to light and in accommodation. The fundi were normal; the teeth, dirty and carious; the throat, red and injected. There were many large, firm lymph nodes in the anterior and posterior cervical chains; these appeared to be matted together. There were similar nodes in the inguinal region, some of which were as large as hen's eggs. The patient's axillary nodes were also enlarged, but appeared firm and discrete. The thorax was large and symmetrical, the walls moderate in thickness. The lungs proved normal to percussion, and the breath sounds were also normal, with no râles. The D'Espine sign was positive; the heart normal; the blood pressure was 126 systolic and 70 diastolic. The muscle tone in the abdomen was good, but there was an indefinable mass in the right upper quadrant. The dulness of the liver did not extend to this mass, and there was no tenderness. The spleen could be felt three fingerbreadths below the costal margin; the genitalia were normal; reflexes, physiologic; sensations, normal.

The laboratory tests showed: the urine, normal, except for a trace of albumin. Examination of the blood revealed: white cells, 5,950; red cells, 4,340,000; hemoglobin, 78 per cent; polymorphonuclears, 62.5 per cent; small monocytes, 26 per cent; large monocytes, 6 per cent; eosinophils, 4 per cent; basophils, 1.5 per cent; the Wassermann test of the blood gave a negative reaction. After histologic examination of the inguinal gland the condition was diagnosed as hyperplastic tuberculous lymphadenitis. Roentgenograms of the chest showed slight bulging just above the shadow of the right hilus. This bulge represented a gland in the mediastinum. The pulmonary fields were normal. The basal metabolic rate was plus 19; the blood urea nitrogen, 12.0 mg., per hundred cubic centimeters.

On the day of admission a large inguinal lymph node about 3 cm. in diameter was removed, and a small elliptic piece of skin was removed from the abdomen. The pathologic diagnosis was hyperplastic tuberculous lymphadenitis. No report on the skin section has been received. The patient was fairly comfortable throughout his stay in the hospital, receiving calamine liniment locally for pruritus. The sutures were removed on the fourth day; the incision healed nicely.

The diagnosis was possible lymphoblastoma.

DISCUSSION

DR. H. N. COLE: We had a boy in the hospital about two years ago who had been shown as having a case of Hodgkin's disease. Glands were removed during his life and the diagnosis confirmed. Autopsy was made, and the pathologists reported hyperplastic tuberculosis, the same diagnosis as that made of this condition. I think that both diagnoses are incorrect, and that we were dealing with lymphoblastoma in both cases.

DR. E. W. NETHERTON: I saw this patient recently and found him to have a low basal metabolism. He was given a large amount of thyroid and improved considerably, but continued to have exacerbations. Blood cultures were taken and found to be normal. It was impossible to obtain a gland at that time.

DR. HENRY DEWOLF: Were tubercule bacilli found in this gland? Of course, judging by the picture, I am more inclined to believe that this man has a disease of the type of lymphoblastoma with cutaneous involvement. It is possible that examination of the blood will give us more information.

DR. H. N. COLE: We have made simply a microscopic diagnosis. Unfortunately, when this gland was taken out there was no thought of tuberculosis, and the entire specimen was put in formaldehyde. I might say, regarding the boy whose case was reported two years ago, that pathologists told us then that they would find the tubercle bacilli in guinea-pigs later. When postmortem examination was performed on the guinea-pigs, it was found that they showed no tuberculosis, and I do not think that tuberculosis is present, despite the pathologic report.

LICHEN PLANUS HYPERTROPHICUS. Presented by DR. H. N. COLE and DR. J. R. DRIVER.

H. K. K., a white man, aged 46, whose personal and family history was unimportant, was first seen in 1925, with an erythema induratum over both shins of five years' duration. Tonsillectomy was advised. The local process was treated with roentgentherapy. Later he was given treatment with the quartz lamp and sulpharsphenamine. Finally, in 1927, on the advice of an internist he was given injections of tuberculin. These injections were followed by a course of gold and sodium thiosulphate injections for about a year. The patient returned to us in September, 1931, complaining of pruritic lesions of the abdomen, genitalia and axillae.

The physical examination revealed, distributed over the lower abdomen, especially on the right, a number of raised, sharply defined, brownish nodules, varying in size from that of a pea to that of a cherry, with a papillomatous appearance over their surfaces and a great deal of induration. Similar smaller lesions were present in the left axillary space and under the scrotum, while over the dorsum of the glans penis were numerous, rather shiny, violaceous, slightly raised, papular, sharply defined lesions. The patient still has some ill defined, slightly reddish, somewhat subcutaneous nodules over the shins, especially on the left leg. At the time the patient was seen in September, 1931, there were also some violaceous papules inside the cheeks, especially the left cheek.

Histologic examination of a verrucous lesion taken from the abdomen showed extensive hyperkeratosis and parakeratosis of the epidermis with cellular infiltration in the upper part of the subcutis, especially involving the papillae. This cellular infiltrate was sharply defined in a bandlike form against the rest of the cutis. There was a certain amount of infiltration around the blood vessels.

The condition suggested lichen planus hypertrophicus, probably after treatment with a heavy metal preparation, of the type that has been described following injections of arsphenamine and gold.

DISCUSSION

DR. J. R. DRIVER: I think that this clinically is without doubt a case of lichen planus hypertrophicus and the histologic specimen bears out that diagnosis. In looking over the literature on lichen planus one runs across numerous reports of zoniform types of lichen planus. The distribution in this case is zoniform, extending to the midline in front and behind. It is possible, too, that this type of lesion is one of those seen following the administration of heavy metal preparations such as arsphenamine and gold.

DR. J. E. RAUSCHKOLB: What is the rationale of the treatment of lichen planus of the hypertrophic type with preparations of heavy metals by the French, when the heavy metals likewise may cause lichen planus?

DR. H. N. COLE: The preparations of heavy metals do seem to benefit lichen planus. It is well known that mercury does, and in a few cases bismuth has been used successfully, but there is no question that after courses of injection of arsphenamine and gold, occasionally cases of idiosyncrasy in the form of lichen planus have been noted by us and reported by others. Dr. Driver noted a number in connection with his report on gold and sodium thiosulphate, and I found a number in connection with our recent survey of intoxication by arsphenamine. The condition occurs too often to be merely coincidence.

Book Reviews

Handbuch der Haut- und Geschlechtskrankheiten. Edited by J. Jadassohn. Volume 14. Part 1. Paper. Price, 160 marks. Pp. 1003. 1930. Volume 15. Part 2. Paper. Price, 82 marks. Pp. 564 Berlin: Julius Springer, 1929.

The first of these two volumes considers several topics: "Skin Diseases and the Mouth," 112 pages; "The Relationship of the Eye to Skin Diseases," 66 pages; "Skin Diseases of the Nose and Ear," 42 pages; "Occupational Skin Diseases," 150 pages; "Exanthems," 40 pages; "Skin Diseases in Infants," 100 pages; "Skin Diseases of the Palms and Soles," 100 pages; "Itching and Itching Dermatoses," 53 pages, and, finally "Comparative Dermatology," a consideration of the most important dermatoses as they relate to both man and animal, 250 pages. Unlike those to most of the volumes, the contributions to this volume are not well balanced; some are elaborate, as the one on comparative dermatology; others are brief and give the impression of being put in for completeness; but the considerations are sound and useful.

The second of the two volumes in this great series is on syphilis. The subjects considered are: "The Generalization of Syphilis and the Dispersing of the Spirochetes," 48 pages; "Immunity of Syphilis," 56 pages; "Reinfection and Superinfection," 65 pages; "Syphilis and Trauma," 30 pages; "The Constitution and Syphilis," 28 pages; "General Pathologic Anatomy of Syphilis," 60 pages; "Wassermann Reaction," 80 pages; "Flocculent Precipitation Tests," 53 pages; "Clinical Interpretation of the Serodiagnosis of Syphilis," 43 pages, and "Skin Tests," 50 pages. Also there is a bibliography of 6 pages. The work is, in short, a thorough consideration of the various topics, and maintains the high standard that we have praised time and time again in considering the volumes in this series.

We have not given the names of the authors of the various topics in either of these volumes because they are among the well known names in German dermatology. In fact, the list of authors throughout this encyclopedia constitutes almost a roll of the ablest men in German dermatology. The series continues to maintain its position as a monumental contribution to the specialty.

Surgical Pathology of the Skin, Fascia, Muscles, Tendons, Blood Vessels. By Arthur Hertzler, Surgeon to the Agnes Hertzler Memorial Hospital, Halstead, Kan. Price, $5. Pp. 301, with 260 illustrations. Philadelphia: J. B. Lippincott Company, 1931.

Excluding the first of the five chapters, which is devoted to ulcers, more than half of this volume in the series of monographs on surgical pathology by Hertzler is devoted to tumors of the skin. Hertzler indicates the reason for his interest in these conditions by the interesting statement that "More patients present themselves in this clinic hopelessly sick with malignancies, the result of neglected or maltreated simple lesions of the skin, than from cancer of the uterus or mammary gland or the lip." It is comforting to find a surgeon who realizes the extreme gravity of these lesions when neglected or ignorantly treated, and who interests himself in their study. Without intending to reflect unduly on surgeons, it would undoubtedly be advantageous for more of them to study carefully the lesions of the skin with which they deal, as Hertzler has done.

The topics that Hertzler takes up are ulcers of the skin, specific and nonspecific, benign epithelial skin tumors, malignant epithelial skin tumors, fibrous tumors of the skin and melanomas. The studies are useful. The standpoint is that of the surgeon rather than of the dermatologist, but there is no lack of knowledge

of the subject, and the consideration of it from the surgeon's standpoint makes the work more interesting to the dermatologist. The various papers will be read with interest by dermatologists.

Bunter Lieder Loser Strauss. By Erich Hoffmann. Cloth. 2 marks. Pp. 72, with 1 illustration. Bonn: Gebrüder Scheur, 1931.

It is not easy in a word or two to give an idea of the quality and character of Erich Hoffmann's poetry. He finds inspiration in the seasons of the year, in the current events of the day, in the discovery of Spirochaeta pallida, in the silver jubilee of this discovery, in his journeys here and there, in Ehrlich's achievements, in a Beethoven anniversary and in similar incidents. When he touches these happenings, they become things of fantasy and vision; they harbor thoughts and imaginings that flit into his mind and crystallize in the form of verses.

Again the author discusses love's many interpretations and evolves a philosophy of love, tracing the divine passion through its divers phases.

The World War, with its tragic sequelae, echoes through his verses—he bares his heart in them as intimately as one writes oneself into a private diary.

Perhaps the outstanding quality of the verses is a genuineness of feeling which comes from the fact that they are the creations not of a writer but of a poet. The distinguished author feels life aesthetically and expresses his feelings lyrically.

Handbook of Skin Diseases. By Frederick Gardiner, Lecturer on Skin Diseases, University of Edinburgh. Third edition. Price, $3.50. Pp. 283. New York: William Wood & Company, 1931.

In this book, the popularity of which is indicated by a third edition, Gardiner has undertaken to describe the commoner skin diseases. He has thus given himself space for a satisfactory consideration of his topics. It is a sound, conservative exposition chiefly of symptomatology, etiology and treatment by a man of wide experience and learning in dermatology. It is a useful introduction to the subject, and can be read with interest by any dermatologist.

Directory of Dermatologic Societies *

NATIONAL DERMATOLOGIC SOCIETIES

American Medical Association, Scientific Assembly, Section on Dermatology and Syphilology

George Miller MacKee, Chairman, 200 W. 59th St., New York.
Francis E. Senear, Secretary, 55 E. Washington St., Chicago.
Place: New Orleans. Time: May 9-13, 1932.

American Dermatological Association

W. H. Mook, President, 3720 Washington Blvd., St. Louis.
W. H. Guy, Secretary, 7026 Jenkins Arcade, Pittsburgh.
Place: Havana, Cuba. Time: May 3-5, 1932.

British Association of Dermatology and Syphilology (Canadian Branch)

Philip Burnett, President, 2 Simpson St., Montreal.
L. P. Ereaux, Secretary, 1380 Sherbrooke West, Montreal.
Place: Toronto. Time: June 24, 1932.

SECTIONAL DERMATOLOGIC SOCIETIES

Baltimore-Washington Dermatological Society

Lee McCarthy, President, 1835 Eye St. N. W., Washington, D. C.
M. H. Goodman, Secretary, 401 Medical Arts Bldg., Baltimore.

Central States Dermatological Association

Howard J. Parkhurst, President, 316 Michigan St., Toledo, Ohio.
Robert E. Barney, Secretary, 1021 Prospect Ave., Cleveland.
Place: Pittsburgh. Time: October, 1932.

Iowa and Western Illinois Dermatological Association

J. C. Kessler, President, University Hospital, Iowa City.
J. W. Bailey, Secretary, 10th St., and Grand Ave., Des Moines, Iowa.

New England Dermatological Society

Arthur M. Greenwood, President, 416 Marlboro St., Boston.
William P. Boardman, Secretary, 388 Marlboro St., Boston.
Place: Boston. Time: April 13, 1932.

Southern Medical Association, Section on Dermatology

Emmet R. Hall, Chairman, 1001 Exchange Bldg., Memphis, Tenn.
Dudley C. Smith, Secretary, University, Va.

STATE DERMATOLOGIC SOCIETIES

Louisiana Dermatological Society

R. A. Oriol, President, 921 Canal St., New Orleans.
M. T. Van Studdiford, Secretary-Treasurer, 150 Baronne St., New Orleans.

* Secretaries of dermatologic societies are requested to furnish the information necessary for the editor to make this list complete and to keep it up to date.

MEDICAL SOCIETY OF THE STATE OF NEW YORK, SECTION ON DERMATOLOGY AND SYPHILOLOGY

Edward R. Maloney, Chairman, 853 7th Ave., New York.
George C. Andrews, Secretary, 115 E. 61st St., New York.

MEDICAL SOCIETY OF THE STATE OF PENNSYLVANIA SECTION ON DERMATOLOGY

Edward F. Corson, President, Medical Arts Bldg., Philadelphia.
Stanley Crawford, Secretary, 200, 9th St., Pittsburgh.

MICHIGAN STATE MEDICAL SOCIETY, SECTION ON DERMATOLOGY AND SYPHILOLOGY

Cyril K. Valade, Chairman, 1604 Eaton Tower, Detroit.
George H. Belote, Secretary, University Hospital, Ann Arbor.

MINNESOTA DERMATOLOGICAL SOCIETY

H. N. Klein, President, 350 St. Peter St., St. Paul.
D. D. Turnacliff, Secretary, 407 Medical Arts Bldg., Minneapolis.

OKLAHOMA DERMATOLOGICAL ASSOCIATION

C. J. Woods, President, 108 W. 6th St., Tulsa.
C. L. Brundage, Secretary, 616 Medical Arts Bldg., Oklahoma City.

TEXAS DERMATOLOGICAL SOCIETY

N. Riley Jackson, President, 110 W. 7th St., Austin.
Everett R. Seale, Secretary, 1215 Walker Ave., Houston.

LOCAL DERMATOLOGIC SOCIETIES

ATLANTA DERMATOLOGICAL SOCIETY

Francis G. Jones, President, 384 Peachtree St., Atlanta, Ga.
Charles A. Wilkins, Secretary, Medical Arts Bldg., Atlanta, Ga.

BRONX DERMATOLOGICAL SOCIETY

Henry Silver, Chairman, 290 West End Ave., New York.
Theodore Rosenthal, Secretary-Treasurer, 115 W. 86th St., New York.

BROOKLYN DERMATOLOGICAL SOCIETY

A. M. Persky, Secretary, 1750 Ocean Pkwy., Brooklyn.
B. B. Berkowitz, President, 225 Eastern Parkway, Brooklyn.

CHICAGO DERMATOLOGICAL SOCIETY

Michael Ebert, President, 25 E. Washington St., Chicago.
E. A. Oliver, Secretary, 55 E. Washington St., Chicago.

CINCINNATI DERMATOLOGICAL SOCIETY

H. Jerry Lavender, President, 716 Provident Bank Bldg., Cincinnati.
Raymond G. Senour, Secretary-Treasurer, 19 W. 7th St., Cincinnati.

CLEVELAND DERMATOLOGICAL SOCIETY

Howard J. Parkhurst, President, 316 Michigan St., Toledo.
Robert E. Barney, Secretary, 1021 Prospect Ave., Cleveland.

Detroit Dermatological Society

Claud W. Behn, President, 1546 David Whitney Bldg., Detroit.
William G. Saunders, Secretary-Treasurer, 9203 Grand River Ave., Detroit.

Los Angeles Dermatological Society

Irving R. Bancroft, Chairman, 412 W. 6th St., Los Angeles.
Chris R. Halloran, Secretary, 1052 W. 6th St., Los Angeles.

Manhattan Dermatologic Society

George Miller MacKee, Chairman, 200 W. 59th St., New York.
Mihran B. Parounagian, Secretary, 126 E. 39th St., New York.

Montreal Dermatological Society

Philip Burnett, President, 2 Simpson St., Montreal.
Lemuel P. Ereaux, Secretary-Treasurer, 1390 Sherbrooke St., West, Montreal.

New York Academy of Medicine, Section of Dermatology and Syphilis

Joseph J. Eller, Chairman, 100 W. 59th St., New York.
Leo Spiegel, Secretary, 241 W. 100th St., New York.

New York Dermatological Society

John Frank Fraser, President, 100 W. 59th St., New York.
Edward R. Maloney, Secretary, 853 7th Ave., New York.

Philadelphia Dermatological Society

Jacob M. Schildkraut, Chairman, 170 W. State St., Trenton, N. J.
Jacques P. Guequierre, Secretary, 1930 Chestnut St., Philadelphia.

Pittsburgh Dermatological Society

J. H. Fiscus, Chairman, 121 N. Main St., Greensburg, Pa.
Claude B. Norris, Secretary, 244 Lincoln Ave., Youngstown, Ohio.
Place: Pittsburgh. Time: October, 1932.

St. Louis Dermatological Society

Richard S. Weiss, President, 3720 Washington Blvd., St. Louis.
M. F. Engman, Jr., Secretary-Treasurer, 3720 Washington Blvd., St. Louis.

San Francisco Dermatological Society

Charles Schoff, President, 1127, 11th St., Sacramento, Calif.
John M. Graves, Secretary, 909 Hyde St., San Francisco.

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